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EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By W. O. Breckon  
Pittsburgh, Pa.*



# STUDIO LIGHT

— INCORPORATING —

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## FILM ADVANTAGES IN FLASH-LIGHT POR- TRAITURE

Film has decided advantages over plates in almost every branch of photographic work, but in none is the advantage more marked than in flash-light work.

The day has passed when photographers will depend entirely upon daylight, just as the day has passed when portraiture of the better sort is entirely a matter of studio sittings.

Practically every successful home portrait photographer is also a successful studio photographer, and many of these have found a simple and compact form of flash-light apparatus especially convenient for home portraiture as well as for dull-day studio sittings.

The great advantage of the flash-light is that it is powerful and instantaneous, while the disadvantage is that a light, powerful enough to be instantaneous,

must of necessity be extremely concentrated and difficult to diffuse.

For this reason the flash-light gives harsh, contrasty results on plates. There is halation which produces chalky highlights, and this is due to reflection from the back of the glass which supports the plate emulsion. Special development with greatly reduced carbonate, which makes the process slow and tedious and the result lacking in brilliancy, is sometimes used to overcome this fault of the plate.

Many photographers, however, imagine that the contrast of the flash-light is an inherent fault, that the light is different or lacking in some quality and see no reason to believe that the trouble is in the physical nature of the material used.

Make two flash-light exposures, one on a plate and one on Eastman Portrait Film, and you will prove to yourself that the fault does not lie in the method

of lighting. The film will give a rendering of halftones and highlights that it is impossible to secure on anything short of the best non-halation plate, and even the non-halation plate will not equal film if the light is intense. There will be a considerable amount of light reflected from the back of the glass support, even if it is double coated and backed. This is practically impossible with film, because the transparent support is not thick enough for an appreciable amount of halation.

Professionals have said of film, "even direct sunlight seems to produce no ill effect on Portrait Film," that "the highlights retain their form and texture, etc.," which of itself explains why the film is especially suited to flash-light work.

A stream of sunlight coming through a window and a flash-light are analogous in-so-far as their effect on a plate is concerned. Out of doors there are so many sources of reflected light that there are seldom the contrasts that are encountered indoors, when either direct sunlight or flash-light is used. But where one does encounter these contrasts, Portrait Film results are invariably better than plate results.

It is not alone the non-halation properties of film, however, that make it so very desirable for flash-light work. Aside from the

halation or radiated light that destroys the detail of highlights and makes them chalky, there is the possibility that the plate may not have the latitude or scale of gradation that will reach from the highest light to the deepest shadow of the brilliant lighting.

Portrait Film has the long scale that is especially suited to such work. All the brilliancy of the lighting is recorded. With a material having a shorter scale of contrast than that of the lighting, either the highlights or the shadows are blocked.

Commercial photographers have learned of these film qualities and have used Portrait Film extensively for flash-light work. Some of the finest interior work of recent years, both by flash-light and daylight, has been made on Portrait Film.

Home portrait and commercial workers are quick to see these film qualities because there are so many other film advantages that appeal to them. But film is now extensively used in studio work and will be used even more extensively by the best workers as the superiority of film results is demonstrated. In flash-light work especially, a trial of film is all that is needed to convince the studio worker that film will materially add to the quality of the work produced.



*Make the negative on Portrait Film*



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*By W. O. Breckon  
Pittsburgh, Pa.*



## CHEMICAL POISONING

There has been considerable discussion of late in regard to chemical poisoning, partly because a great many new workers have been added to the photographic ranks in the last year or two, and partly because some photographers imagine that the scores of new developing agents that have made their appearance since the beginning of the war are really new in composition. As a matter of fact, they are practically all of them salts of paramidophenol, methyl-paramidophenol or diamidophenol, so there is really nothing new either in developers or in chemical poisoning. The following explanation and suggestions may be of value where chemical poison has been or is likely to be encountered.

Usually the trouble commences with itching and local reddening of the skin followed by swelling and the formation of water blisters, especially in the region of the nails and between the fingers, and in severe cases these blisters combine to form one large one, encircling the entire hand. At this stage with careful attention the blisters subside and in two weeks the skin begins to peel and the patient is well, though if the blisters burst, raw sores are left which heal with difficulty and there is danger from bacterial infection.

In all cases it is advisable to consult a physician as the condition of the health has an important bearing on infections of this nature. No specific eliminant appears to have been discovered, the usual "cures" in the form of ointments serving merely to allay the inflammation. An application of zinc ointment or the formula containing resorcin and ichthyol often recommended and bandaging of the parts affected is usually sufficient. After the skin has peeled, the parts affected are always supersensitive to the poison so that special precautions must be taken in future. There is no cure known which will prevent future attacks if the person is again exposed to the action of the chemicals which caused the poisoning.

There is some doubt among members of the medical profession as to whether the poison does enter the blood stream. In most cases the trouble is confined to the under layers of the skin on the hands, the chemical acting as a local irritant. There are cases on record, however, of persons who have handled quantities of these dry chemicals, have breathed the chemical dust, and the poison has broken out in different parts of the body. This is strong evidence that the entire blood stream may become poisoned. In ordinary dark-room procedure the poison undoubtedly enters the skin by the way of



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cracks formed by chapping or roughening of the skin by the action of the alkali in the developer. If the developer or other chemical solution is then allowed to dry on the hands, the salts crystallize within the pores and cause the skin to crack further, exposing the under layers and rendering possible the access of the chemicals to the blood stream.

Almost every photographic developer will cause trouble with the right person, and in this respect the personal element plays an important part. In the factories where photographic developers are manufactured, new comers appear to be particularly susceptible and employees are transferred to some other occupation if poisoning symptoms appear. Persons with very thin skins are particularly liable to be affected. Coal tar developers take first place as regards severity of action, though cases of poisoning have been known where the person handled pyro exclusively. On the other hand, some persons susceptible to one developer are immune to another.

The mode of access of the poison being known, preventive methods at once suggest themselves and may be tabulated:

(a) Never let the developing or other chemical solution dry on the skin, so that if solutions are being handled intermittently it is better to keep the hands thoroughly wet rather than dry

them after only imperfectly washing them.

(b) When washing the hands, wash for two or three minutes in hot water until all soapy feeling disappears, otherwise the chemicals left within the pores will crystallize and cause cracking of the skin. The reason why most poisoning is caused by developers is because it is difficult to remove alkali from the skin by washing, especially if it is at all cracked. By bathing the hands in a weak acid solution, say 1% acetic acid, or by immersing them in the acid fixing bath before washing, the alkali is neutralized and the salt thus formed is more readily removed by washing.

(c) The use of a thin coat of vaseline on the hands will assist in preventing access of the solution within the pores of the skin, while rubber gloves, if used at an early stage, are an almost certain preventive. If vaseline is used it should be rubbed into the pores of the skin, after which the surface greasiness should be wiped off, otherwise the work will surely suffer from finger marks.

The usefulness of the above simple precautions is shown by the fact that during the instruction of over 5000 students at the U. S. A. School of Aerial Photography, Rochester, N. Y., only a single case of chemical poisoning was reported.







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## THE MAN WHO MADE THE PICTURES

Some photographers who have never made a business of home portraiture think of the home portraitist as an intruder, as one who has broken into traditional photographic circles, while as a matter of fact he has merely broken out. He is a man who has seen the limitations of studio service and who has been broad enough to reach out and grasp a new idea rather than have it forced upon him.

Mr. W. O. Breckon of Pittsburgh is one of the pioneers of home portraiture. He recalls the first examples of home portraiture which he exhibited to other photographers with the apology, "made by a window in a home; unhandy outfit; difficult light, etc." To-day no apology is necessary. Experience with window lightings, Portrait Film and the Home Portrait Outfit have overcome former difficulties.

During a demonstration at a recent convention, Mr. Breckon was asked what class or style of work he liked to make, and his reply was, "Good, straight photographs—the kind that honestly pleases the people." He believes that expression sells 90 per cent. of the photographs made while the other 10 per cent. is a matter of salesmanship and possibly the photographer's reputation.

Believing this, he gives his sit-

ter a natural and pleasing pose and makes a number of exposures to catch the various changing expressions. When a new position is given for almost every exposure there is the danger that the pleasing pose is found in one negative and the pleasing expression in another.

On being asked what he considered the chief advantage of Film over Plates, Mr. Breckon replied: "Did you ever go out by appointment to photograph the first grandchild, the finest baby in the world, with twelve 8 x 10 plates in the holders (and that's enough to carry with the rest of the outfit)? When you are about ten exposures along, Mother decides that it is just the time to get a picture of Grandma and Grandpa with the baby, also to have their portraits made separately.

"Not having enough plates, you make a trip to the studio and return with twelve more. But by this time baby has become restless, Grandpa is sleepy and Grandma has lost interest for the time in photography. The extra dollars hitched to that order are gone.

"I stopped that leak in profits with Eastman Portrait Film. I carry three to six dozen 8 x 10 Film for emergencies, no extra weight worth mentioning and I can reload in a clothes press when necessary.

"I take them where my cus-



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tomers want them taken and am more successful under trying conditions with films than with plates. When you are shooting against the light at the youngsters with their noses flattened against the window, watching for 'Dad', or the girls in the conservatory with sunlight streaming in through the plants, film helps you to get real quality in the deep shadows beneath the greens and also holds a clear, clean-cut outline of the figures against the strongest light."

In the Breckon studio you are strongly impressed with the harmony of studio arrangement, business methods, service, and high class workmanship. Our illustrations are excellent examples of Mr. Breckon's work on Portrait Film.



## ADVERTISING CONTEST RESULTS

The pictures entered in the 1918 Kodak Advertising Competition have been passed upon by the judges and the prizes have been awarded for those pictures which, in the minds of the judges, presented the most forceful arguments for the sales of Kodaks or Kodak accessories.

There were fourteen prizes divided into two classes. The list of those who won the prizes follows:

### CLASS A

First . .	William Shewell Ellis
Second . .	J. W. Weiseisen
Third . .	Edwin G. Dunning
Fourth . .	R. T. Dooner
Fifth . .	George J. Botto
Sixth . .	J. W. Weiseisen
Seventh . .	W. B. Stage

### CLASS B

First . .	Florence N. Conaghan
Second . .	George H. Seip
Third . .	William C. Motteram
Fourth . .	George W. French
Fifth . .	James J. Ryan
Sixth . .	Edwin S. Culver
Seventh . .	John S. Neary

The judges were: E. B. Core, Photographer, Yonkers, N. Y.; L. á Hiller, Photographer, New York City; J. D. Ellsworth, Advertising Manager, American Telephone and Telegraph Co., New York City; Don M. Parker, Secretary, Century Co., New York City; W. R. Hine, Vice-President and General Manager, Frank Seaman, Inc., New York City.



## LANTERN SLIDE BOOKLET

The first edition of a new booklet, "Lantern Slides—How to Make and Color Them," has just been received from the printers and will be of interest to every professional photographer who makes slides. The new methods of toning and tinting slides, worked out in the Eastman Research Laboratory, are especially interesting. The booklet is free at your dealer's.



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# THE CHEMISTRY OF PHOTOGRAPHIC MATERIALS

Photography is so essentially a chemical process that every photographer should have an interest in the chemicals he uses and in the reactions which they undergo.

In this and several articles which will follow, including such subjects as the chemistry of development, the chemistry of fixation, etc., no attempt will be made to give an account of advanced or even elementary chemical theory.

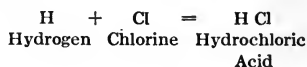
We will, however, give the reason for the use of symbols in designating the chemical elements, as these symbols are universally used by chemists.

All substances are made by the combination in various proportions of a limited number of *elements* of which about eighty exist. These elements combine together in different proportions to form bodies of fixed composition which are termed *compounds*.

Thus, one volume of the gaseous element hydrogen combines with one volume of the gaseous element chlorine to form two volumes of the compound hydrochloric acid gas.

This combination can be represented by what is called a chemical equation. Thus, if we

write H for hydrogen, Cl for chlorine and H Cl for hydrochloric acid, we can represent the above combination by the equation



It will be seen that an equation such as that given above is really a short-hand method of stating what happens, the elements which take part in the combination being designated by letters. These letters which stand for the elements are called the symbols of the elements, and by their combination the compounds of the elements are likewise indicated.

The art of photography is founded upon the fact that the compounds of silver, and especially its compounds with chlorine, bromine and iodine, are sensitive to light.

The earliest photographs were made by coating paper with silver chloride and using this to form images by its darkening under the action of light, but the sensitiveness of the silver chloride was too slight to use it in this way for forming images in the camera.

In order to get results which require less exposure to light, advantage is taken of the fact that it is not necessary for the light to do the whole work of forming the image. It is possible to expose the silver compound for

only a short time to the light and then to continue the production of the image by chemical action, the process being termed "development."

Sensitive photographic materials therefore consist of paper, glass, or film coated with a sensitive layer which holds in suspension silver bromide or silver chloride. The sensitive layer which is coated on photographic material is called the *emulsion*. This emulsion consists of a suspension of the silver compound in a solution of gelatine. It is made by soaking gelatine in water until it is swollen and then dissolving it in warm water, gently warming and shaking the solution until all the gelatine is completely dissolved. The necessary bromide or chloride, *e. g.*, potassium bromide or sodium chloride, is then added to the solution and dissolves in it. Meanwhile the right amount of silver nitrate to react with the amount of salts used has been weighed out and is dissolved in water. The silver nitrate solution is then added slowly to the solution of gelatine and salt and produces in it a precipitate of the silver compound, the mixing being done in the dark-room, since the silver compound produced is sensitive to light. If there were no gelatine in the solution the silver compound would settle down to the bottom and an emulsion would not be formed, but the gelatine

prevents the settling and keeps the silver compound suspended evenly so that as the silver is added a little at a time the gelatine becomes full of the evenly precipitated silver distributed through the solution. If this solution is coated on a support such as paper or film and then cooled, the gelatine will set to a jelly, and when the jelly is dried we get a smooth coating of dry gelatine containing the sensitive silver compound suspended in it.

Materials which are to be used with development must contain no excess of soluble silver and the emulsion must be made so that there is always an excess of bromide or chloride in the solution, since any excess of soluble silver will produce a heavy deposit or fog over the whole of the surface as soon as the material is placed in the developer. In the case of Solio paper, however, which is not used for development but which is printed out, a chloride emulsion is made with an excess of silver nitrate, this having the property of darkening rapidly in the light, so that prints can be made on Solio paper without development, a visible image being printed which can be toned and fixed. Solio paper can be developed with certain precautions, but only by the use of acid developers or after treatment with bromide to remove the excess of silver nitrate.

In the early days of photog-



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raphy prints were usually made on printing-out papers, but at the present time most prints are made by the use of developing-out chloride or bromide papers, which are chemically of the same nature as the negative making materials and which are coated with emulsions containing no free silver nitrate.

Negative making materials, such as plates and films, always contain silver bromide with a small addition of silver iodide. The different degrees of sensitiveness are obtained by the temperature and the duration of heat which the emulsions undergo during manufacture, the more sensitive emulsions being heated at higher temperatures and for a longer time than the slower emulsions.

If a slow bromide emulsion is coated upon paper, the material is known as *bromide paper* and is used for printing, and especially for making enlargements. The less sensitive papers which are commonly used for contact printing by artificial light contain silver chloride in the place of silver bromide.

In order to obtain silver nitrate the first step is to dissolve metallic silver in nitric acid. The silver replaces the hydrogen of the acid and forms silver nitrate, the hydrogen liberated decomposing a further portion of the nitric acid. The silver nitrate is crystallized out of the solution

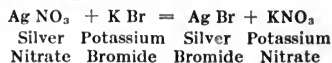
and obtained in colorless, transparent flakes.

*Silver Nitrate* for photographic use has to be extremely pure, and the metallic silver contains a small quantity of other metals such as copper and lead, from which it is necessary to free it. This is accomplished by recrystallization so that the silver nitrate is finally obtained in a perfectly pure form.

In order to ensure the purity of the silver nitrate which it uses, the Eastman Kodak Company prepares its own, and is the largest maker of silver nitrate in the world, using about one-twenty fifth of all the silver mined in the United States. In order to be perfectly certain of the purity of this vital material, the company even manufactures the nitric acid used for dissolving the silver.

Silver nitrate is very soluble in water, the solution being strongly caustic so that it attacks organic material. Blackening of the skin, wood, cloth, and other similar substances, follows on exposure to light.

When a solution of silver nitrate is added to a solution of a bromide or chloride, reaction occurs and the insoluble silver bromide or chloride is precipitated. Thus, if we add silver nitrate to potassium bromide, the reaction occurs according to the following equation:



The potassium nitrate formed remains in solution, but if the solution is at all concentrated, the silver bromide is thrown down to the bottom of the vessel as a thick, curdy precipitate.



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The bromides and chlorides used in photography are chiefly the salts of potassium and sodium. Both the bromides and the chlorides are obtained from naturally occurring salt deposits, but whereas these deposits consist chiefly of chlorides, they contain only a very small quantity of bromide, and bromide is therefore a very much more expensive material than chloride.

The elements chlorine, bromine and iodine are all obtained from natural salt or from the sea, iodine being usually derived from certain sea weeds which extract it from the sea water and thus make it available in a concentrated form. Chlorine is a yellowish-green gas, very suffocating and poisonous; bromine gives dark red fumes which are even more noxious than chlorine and condense to a liquid, and iodine forms shining, black crystalline flakes which on heating give a violet vapor. The chief chlorides, bromides and iodides used in photography are the following:

*Ammonium Chloride*—Made from ammonia and hydrochloric acid, should have no smell, and when evaporated by heat should leave no residue behind. White crystals soluble in water.

*Ammonium Bromide*—Very similar to the chloride, which is the only impurity likely to be present.

*Ammonium Iodide*—Should consist of colorless crystals. Decomposes in light and is stained yellow by the iodine liberated. Very soluble in water and deliquescent. Soluble in alcohol.

*Sodium Chloride*—Ordinary table salt is fairly pure sodium chloride and a very pure salt is easily obtained. The pure salt is stable and not deliquescent. Soluble in cold water to the extent of 35%. Solubility increases very little on heating.

*Sodium Bromide*—Is a white salt, similar to the chloride but more soluble. Is generally pure but may contain chloride.

*Potassium Chloride*—White salt, very similar to sodium chloride.

*Potassium Bromide*—Occurs as colorless cubical crystals and is generally pure. Very soluble in water.

*Potassium Iodide*—Similar to bromide. Very soluble. May contain as impurities carbonate, sulphate and iodate, but is usually pure. Potassium iodide dissolves iodine, which is insoluble in water, and is therefore used to prepare a solution of iodine.

The gelatine which is used to hold the sensitive silver compound is a very complex substance which is obtained from the bones and skins of animals, and it has some curious and valuable properties. In cold water it does not dissolve but it swells as if, instead of the gelatine dissolving in the water, the water dissolves in the gelatine. If the water is heated, the gelatine will dissolve, and it will dissolve to any extent. It cannot be said that there is a definite solubility of gelatine in water in the same sense as salts may be considered to have a definite solubility. As more gelatine is added, the thicker the solution becomes. If the gelatine solution is heated, it will become thinner



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and less viscous when hot, and will thicken again when cool, but it will not recover completely. It will remain thinner than if it had not been heated, so that the heating of the gelatine solution produces a permanent change in its properties. If a gelatine solution is cooled, the gelatine will not separate from the solution in a dry state, but the whole solution will set to a jelly. If the jelly is heated again, it will melt, and a jelly can be melted and reset many times. During the treatment there will be produced a progressive change in the jelly, and if the process is continued too long, sooner or later the solution will refuse to set and will remain as a thick liquid.

Gelatine belongs to the class of substances which are called colloids, the name being derived from a Greek word meaning "gummy." When a gelatine jelly is dried it shrinks down and forms a horny or glassy layer of the gelatine itself, smooth and rather brittle. This dry gelatine when placed in water will at once absorb the water and swell up again to form a jelly. This swelling of gelatine when wet and shrinking when dry is of great importance in photography. When a photographic material with an emulsion made of gelatine is placed in water, the film will swell up and continue to absorb more water and swell for a long time, finally becoming soft and

even dissolving, the extent to which this occurs depending on the temperature and nature of the solution in which it is placed. A small amount of either an acid or alkali will produce a considerable increase in the swelling, and since the developer is alkaline and the fixing bath is acid, both these solutions have a great tendency to swell the gelatine, especially when they are warm. In order to avoid difficulty from this course, gelatine emulsions have a hardener added before they are coated, gelatine being hardened and made more resistant to swelling by the addition of alum. Under ordinary circumstances no difficulty is experienced by the photographer owing to the softening of the gelatine, but when photographic materials are exposed to extreme temperatures, care must be taken in handling them. Hardening agents such as alum must be added to the fixing bath, and all solutions must be kept at the same temperature in order to avoid sudden contractions or expansions of the gelatine, which may result in detaching the film from its support or in the production of reticulation.



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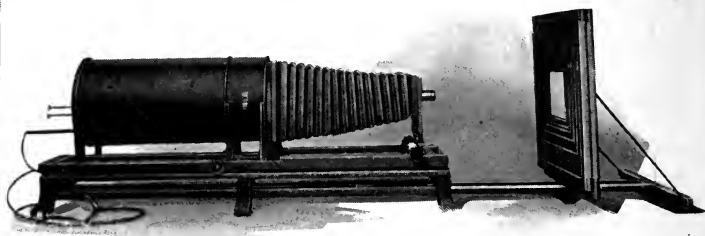
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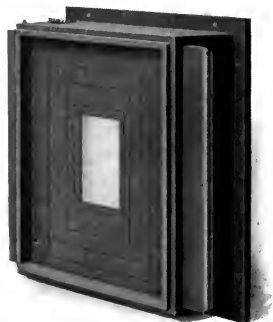


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*When the boys come home.*



## EASTMAN PORTRAIT ALBUMS

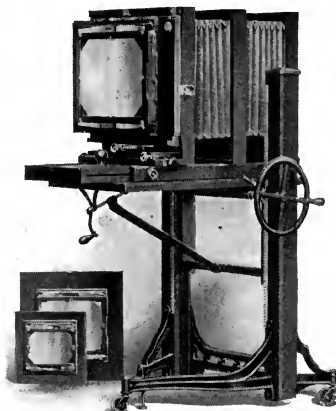
Will keep the soldiers' portraits as they should be kept, and there will be room for the picture record they will make of the war and its friendships.

Have albums in stock, show them, sell them and you will make more business for yourself. And besides, there is a good profit for you on album sales.

EASTMAN KODAK COMPANY,

ROCHESTER, N. Y.

*All Dealers'.*



*The Advantages of*

## **Century Studio Apparatus**

Ease and smoothness in making adjustments.

Rapidity and precision in the operation of the sliding carriage, and the backs of various sizes.

Interchangeable use of Eastman Portrait Film and Plates in regular View Holders.

Excellence of construction and richness of finish throughout.

*Write your stock house for particulars.*

**CENTURY CAMERA DEPARTMENT**

**EASTMAN KODAK COMPANY**

**ROCHESTER, N. Y.**

# STYLE

# DURBAN

For 4 x 6, 5 x 8

and 7 x 9½

Square Prints.

Slip-In Corner Style.

Colors—Grey

and Brown.



**The Durban** is an exceptionally attractive and high class folder made of two-tone coated Leatherette stock. This is the folder to use for your best grade work, and one that will bring the price for Xmas trade. Insert has neat tinted design with raised Corners with neat scroll Embossing on each. Colored bevelled edges. Tinted Embossed Crest on Cover with nipped edges. Be sure and have a stock of this style for your Best Xmas Trade.

**SAMPLE MAILED FREE**

MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS

MADE IN CANADA



Quality made, and quality  
maintains the success of

# ARTURA

*The paper without a  
disappointment*



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

*All Dealers'.*



EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By Chas. A. Townsend  
Belfast, Maine*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 10

FEBRUARY 1919

No. 12

## BUSINESS IS BUSINESS

This should be a big year and a profitable year in photography—a year of big effort, big business and better business.

Big business is only big business when it is profitable business. A great amount of business at little or no profit indicates lack of economy or an incorrect estimate of cost of production and selling. Economy is prevention of waste whether it be of time, effort, material or money. But one may practice every economy and still do business at an actual loss.

It costs a certain amount to operate a studio for a given minimum of production. We will say one employs a receptionist who is also a retoucher, and a printer and does the negative making himself. The profit will be greatest when this force can be kept working at or near its maximum of production.

We have heard it said that in

a town of a given size there is only a limited amount of business to be done and it is just a question of who gets the most of it. We don't believe this is true—in fact, we know it isn't. Three photographers in a town of 10,000 people may do a certain amount of business. Three photographers in another town of the same size may do twice the amount of business.

The unbeliever will say, "But there is a wonderful difference in the way people buy in those two towns," and we admit this fact.

This is not an advertising story, but we can't help mentioning the fact that advertising is one means of making your efforts productive. By making more people want photographs and by making those people who are your customers want photographs more often you can bring your production up to the full capacity of your plant and so make and sell a dozen pictures at the least

possible overhead cost. Good advertising will do it.

You have read a great deal about system and bookkeeping methods, etc., and when it is all boiled down it simply means knowing your business and being able to prove by your books that you do know it. There is nothing really difficult about it, but to one who has a small business and has never kept a set of books it seems difficult.

There is no denying the fact, however, that the man with the system properly operated will almost invariably make more profit on a given amount of business than the man who guesses at costs and profits.

You should have an accurate statement of your business for 1918 to be able to determine with fair accuracy what your cost for a dozen photographs will be for 1919.

If you haven't a system in operation, start one at once, and from the results obtained you can figure what it has cost you to make and sell each dozen pictures you have produced and what your profit has been. Of course, costs should be figured on a year's business to give you a correct estimate.

Keep an accurate record of every penny of your studio expense. This should include, besides the salaries of employees, a suitable salary for yourself and any member of your family who

may work in the studio. If you own your building it should include an amount for rent that you would have to pay if another were the owner. It should include advertising, cost of displays, heat, light, water, repairs, insurance, postage, office supplies, telephone and sundry expenses and any losses from bad debts. It should include a year's interest on your total investment, which you will know when you have taken an inventory, as well as depreciation, which is figured in your inventory. Charge also any losses of any nature and any donations to charity, etc.

Once you know exactly what it has cost you to produce and sell your work—manufacturing and selling cost, which, to make it still more simple, we will call "overhead", you have only to figure the cost of a year's material to be in a position to get at your net cost. From this net cost it is then a simple matter to figure what your selling price must be to make the desired amount of clear net profit.

We will suppose that your average sales for the year were \$1,000.00 per month, and all your expenses were \$600.00 per month. Of this \$600.00 you spent \$200.00 per month for material and \$400.00 per month for all other expenses. Therefore, your physical material represents 40% of your cost and your overhead 60% of your cost.



EASTMAN COMMERCIAL ORTHO FILM NEGATIVE, ARTURA PRINT

*By Chas. A. Townsend  
Belfast, Maine*



To find the price you must charge for any order of work, find the actual cost of material. We will say you determine this is \$3.00 on a certain dozen of photographs, then

40% of cost, or physical material, = \$3.00  
60% of cost, or overhead, = 4.50

100% or net cost, = \$7.50

How much profit do you wish to make on this dozen portraits which it will cost you \$7.50 to produce and sell?

Here is the way the business man will determine what his selling price must be to make a given profit on his sales.

To make a profit of 50% on the selling price you must add 100% to the cost.

For 40 % profit add  $66\frac{2}{3}\%$  to cost  
“  $33\frac{1}{3}\%$  “ “ 50 % “ “  
“ 25 % “ “  $33\frac{1}{3}\%$  “ “  
“ 20 % “ “ 25 % “ “

We found our net cost was \$7.50 for a dozen portraits and we want to make  $33\frac{1}{3}\%$  profit:

\$ 7.50 = net cost  
3.75 = 50% of cost

\$11.25 = sale price

Reverse the problem and you prove the rule, for  $33\frac{1}{3}\%$  of \$11.25 is \$3.75.

There is a rule for doing this same problem which works equally well. Your selling price is 100% and you wish to make a profit of 40%, so your cost must be 60%.

Divide the cost, \$7.50 by .60, the percentage of cost, and the

result is \$12.50, the selling price.

Once you have established selling prices that yield you a satisfactory profit, based on the previous year's business, you have only to increase your business without materially adding to your fixed overhead expenses to increase your profits. Increasing your business during dull months is the most likely way of adding to your profits, for you are keeping your help busy.

Just here is where the value of good advertising is seen. Advertise to get new business—keep an accurate account of your expenses—keep up your collections and avoid loss from bad accounts, and never sell your work without making a fair profit, and you should have the best business in 1919 of any year in the history of your career.

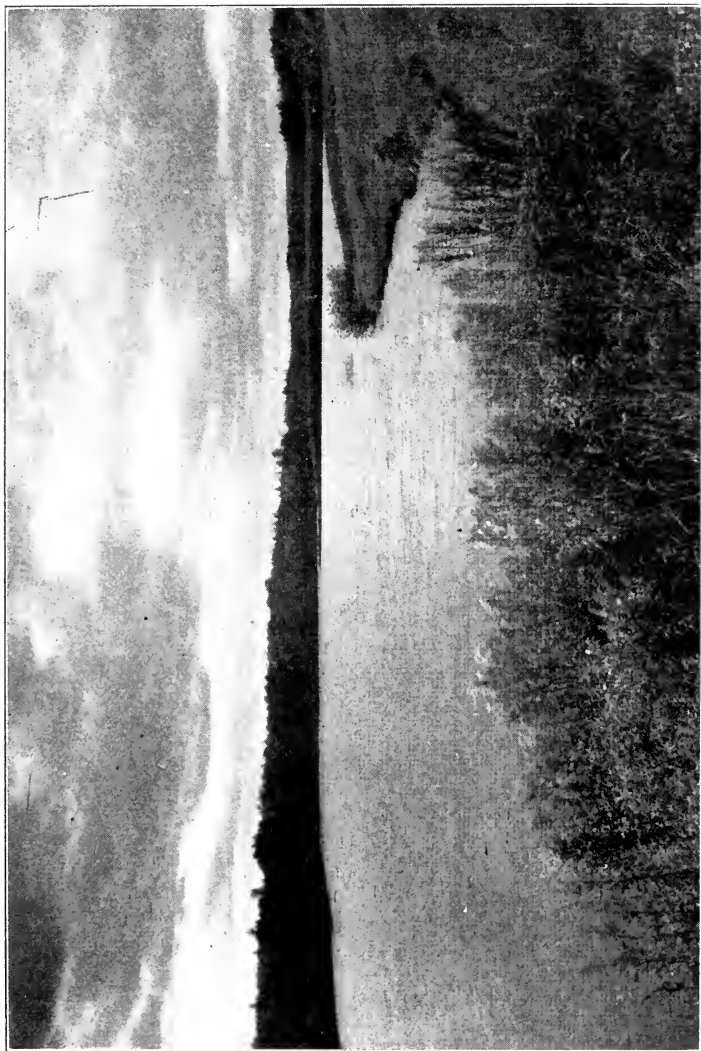
System is worth studying carefully for it is as important as the quality of the work you make. Ask your dealer for the booklet “System for the Photographic Studio.”



*Every time you break  
a plate—  
Every time you receive  
a broken plate—  
just remember :*

**Portrait Film**





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## REPRODUCING VALUABLE NEGATIVES

Nearly every studio has in its files negatives that can be counted upon to supply a certain amount of revenue in duplicate orders. And in some cases the value of such negatives is very hard to estimate.

You have made the favorite portrait of the local Member and he may eventually rise to the honour of a place in the Cabinet. He may insist on the use of his favorite portrait for publicity purposes, and you will receive a considerable income from this one negative for several years.

But one day the printer gets careless and something happens—you may never know just what—but that particular negative is broken. You can copy a print, but the quality of the original is lost.

We know of a concern that handled valuable negatives as carefully as they could be handled, and still they got broken. The printer believed it was a "jinx" that their value put on them but, however that may be, the boss found that you couldn't "jinx" a film negative. So all of the valuable negatives on glass have been reproduced on film. Everyone about the place breathes more freely now, and when the printer looks as though he might be on the verge of a collapse, the boss doesn't ask him which negative he has broken but just

naturally tells him to go home and get a doctor.

If you have valuable negatives on glass it is a very simple matter to reproduce them. Make a film positive of good quality and file it away in a safe place. We say a safe place because there might be a fire in the block in which your studio is located and your negatives ruined by fire or water, but you could not get insurance to cover the value that is in them. Store your original negatives in the studio and store the positives you make from them at home. They are film and will take up no appreciable amount of space.

If your negative is of normal contrast, make the positive on Commercial Film. Do not confuse this with Commercial Ortho, which is much faster. Commercial Film has about the same speed as a Seed 23 Plate and is especially suited for making positives.

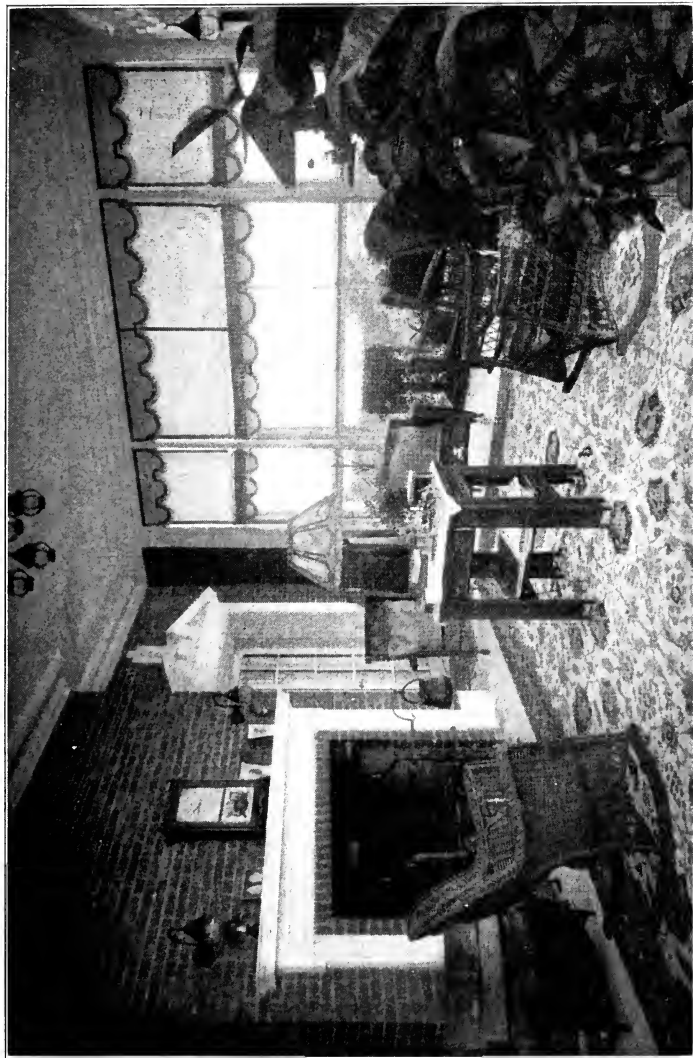
If, however, the negative is flat and could be bettered by giving it slightly more contrast, make the positive on Process Film, while if it is too contrasty, it can be improved by making the positive on Portrait or Commercial Ortho Film.

If you are not accustomed to making positives, or if you *are* accustomed to making lantern slides, it is well to know that lantern slide quality is not the positive quality necessary for pro-





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Belfast, Maine

ducing negatives. The lantern slide or the transparency that is made to hang in a window must have fairly opaque shadows and transparent highlights to have brilliancy, but such quality will not reproduce a negative properly.

For this purpose the positive must have detail and gradation—not the quality that makes it beautiful to look at but the quality that makes it print well.

To secure this, exposure must be full and development must be carried to the point where detail is secured in the highlights and there is good printing density. This is absolutely necessary if the positive is to hold up and reproduce the negative in its correct balance and original quality.

Positives are usually made by contact in a printing frame, care being used to see that perfect contact is secured. Exposures are most satisfactory when made at about twelve or fifteen feet from a 16 c. p. electric lamp. For the average normal negative the exposure will be approximately from six to twelve seconds.

The regular formula recommended for the film should be used in developing both positive and negative. It will be found most simple to do any retouching, etching or spotting on the positive. When placed in a retouching frame the result of the work can be seen exactly as it will appear in a finished print.

A scratch or a hole that would be difficult to spot in the negative appears as a black spot in the positive and is quickly etched away.

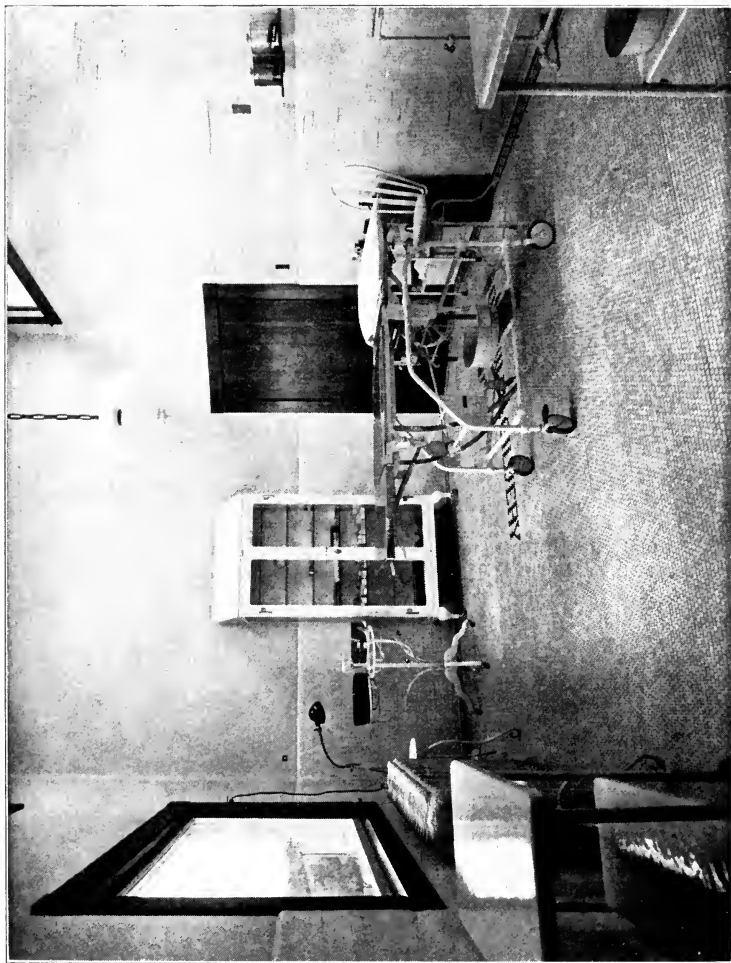
If you have not used film for negative making, use film as insurance against negative breaking. Then when you have seen film advantages in this particular line of work, a trial will convince you of the superior quality of film results in all your negative making.



## THE MAN WHO MADE THE PICTURES

There are photographers all over the country who make excellent work, and there are a great many of them who make exceptionally fine work. We expect to find the latter in the large cities where there are exceptional opportunities, but quite often we find them in the small towns. And, when we do, the argument that the small town photographer doesn't have the opportunity to cash in on his ability doesn't hold good.

The small town commercial photographer, for example, has the opportunity to become proficient in a number of lines of work. He can choose his field, study new methods and perfect his knowledge in any line of work, because he has the time and is not handicapped with a big overhead expense and the



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great volume of work that must come in and go out in a continuous flow to offset this overhead and leave a living profit.

Some men are most happy when they can sit in a private office and direct the forces that keep a big establishment running smoothly in its daily grind of business. These men are essential and their reputations are well earned. But the man in the small town in a smaller business, if he is so constituted, can get an equal or greater enjoyment out of life and his work by getting his own fingers in the developer.

Chas. A. Townsend of Belfast, Maine, has an establishment that at once impresses you as being in perfect keeping with the excellent quality of the work he produces. It is a home studio, for there is no need of a more expensive location in the business section of Belfast.

Mr. Townsend is not a portrait photographer, and Belfast business is but a small part of his support. His work is as well known in Camden or Rockland or Bar Harbor, and his commissions often come from wealthy members of the summer shore colonies whose homes and grounds offer wonderful opportunities to the photographer who knows how to make the most of them. And that Mr. Townsend does is readily seen by the examples of his work which we are permitted to reproduce.

Mr. Townsend finds that with Commercial Ortho and Portrait Film he is equipped with the material that meets every need of the commercial photographer for work outside the studio.

For landscapes with delicate cloud effects, and foliage that should be rendered in tone values simulating those of nature, he finds Commercial Ortho Film not only gives him the color values he desires, but a full scale of gradation.

For interiors where excessive contrasts are encountered, and the effect of harsh lights must be modified to allow of a correct rendering of the shadows, Portrait Film gives him results that in every way excel those he had formerly obtained on plates.

His film material is always non-halation and has the added value of lightness and convenience in handling, which appeals to the commercial photographer whose work is for the most part away from the studio. The Townsend Studio in Belfast is a model workshop, and its proprietor is a workman who puts quality ahead of all else.

We regret that the standard weight and quality of STUDIO LIGHT paper, which was ordered when restrictions on paper making were removed by the War Industries Board, is not available for reproducing the work of Mr. Townsend.



EASTMAN COMMERCIAL ORTHO FILM NEGATIVE, ARTURA PRINT

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Belfast, Maine*



## THE CHEMISTRY OF DEVELOPMENT

When a light sensitive material is exposed for a short time to light, although the change which takes place may be so minute that it cannot be detected by any ordinary means, if the exposed material is placed in a chemical solution, which is termed the "developer," the chlorine or bromine is taken away from the silver, and the black metallic silver which remains behind forms the image. This image is, of course, made up of grains, because the original emulsion contains the silver bromide in the form of microscopic crystals, and when the bromine is taken away from each of these, the crystal breaks up and a tiny coke-like mass of metallic silver remains behind in exactly the same position as the bromide crystal from which it was formed, so that, whereas the original emulsion consisted of microscopic crystalline grains of the sensitive silver salt, the final image consists of equally microscopic grains of black metallic silver. This removal of the bromine from the metallic silver is known chemically as *reduction*. (It must be remembered that chemical reduction has nothing to do with the photographic operation known as the reducing of a negative, that is, the weakening of an over-dense negative, where the word simply refers to

the removal of the silver and is not used in the chemical sense.)

Chemical reducers are substances which have an affinity for oxygen and which can liberate the metals from their salts, in much the same way as charcoal is used to reduce iron from its ore. A developing solution is therefore one which contains a chemical reducer. All substances which are easily oxidized, are, however, not developers, since in order that a reducer may be used as the photographic developer it is necessary that it should be able to reduce exposed silver bromide but should not affect unexposed silver bromide, so that its affinity for oxygen must be within certain narrow bounds. It must be a sufficiently strong reducer to reduce the exposed silver salt, and at the same time must not affect that which has not been exposed. For practical purposes the developing agents are limited to a very few substances, almost all of which are chemically derived from benzol, the light oil which is distilled from coal tar.

The commonest developing agents are pyrogallol, hydroquinone, paramidophenol or Kodolon, Elon and diamidophenol.

*Pyrogallol* (or pyrogallie acid) is made from gallic acid, which is obtained from gall nuts imported from China, the gall nuts being fermented to obtain the gallic acid, and the gallic acid being then heated in a still from which the pyrogallol is distilled over. Before the war

most of the pyrogallol used in this country was made in Europe, but the shortage was met by the erection of a plant by the Eastman Kodak Company, which to day makes all the pyrogallol needed for their customers. Pyrogallol is made in two forms: a flaky powder form and a crystal form. When the powdered pyrogallol is opened in the dark-room or studio, the fine particles fly about and are likely to settle on paper or plates, producing spots on the photographs. For this reason the Eastman Kodak Company supply pyrogallol in the crystal form, which can be handled without any danger of particles flying about and giving trouble.

*Hydroquinone* is made from benzol, which is first converted into aniline and then oxidized in order to get the hydroquinone. It is made in several places in the United States. It is a less powerful reducing agent than pyrogallol but gives no stain and is very useful in conjunction with Elon or Kodol for developing papers. When used with these substances it also gives developers which keep very well in tanks and are convenient where a developer must be kept for a long time, as in motion picture work.

Some time after pyrogallol acid and hydroquinone were in general use by photographers, there were introduced a number of new developing agents made from coal tar, which are very useful as supplements to the older developers. Several of these are based on a substance called *paramidophenol*, which is made in the manufacture of dyes. When paramidophenol is treated with methyl alcohol the methyl attaches itself to it and forms a compound called *methyl-paramidophenol*, which is

a more active developing agent than the paramidophenol itself. Another developing agent of the same type is *diamidophenol*, which is prepared in a way similar to paramidophenol.

Paramidophenol, methyl-paramidophenol and diamidophenol are all bases and the developing agents are their salts, the chlorides (or hydrochlorides) of paramidophenol and diamidophenol being used, and the sulphate of methyl-paramidophenol.

*Paramidophenol Hydrochloride* is manufactured by the Eastman Kodak Company under the name of *Kodolon*. Many of the so-called "new" developing agents on the market consist entirely or mainly of paramidophenol hydrochloride. A good sample should be light in color and should burn entirely when heated to redness, leaving no ash behind.

*Monomethyl Paramidophenol Sulphate* is sold by the Eastman Kodak Company under the name of *Elon*. It is a more powerful developer than paramidophenol and is used with hydroquinone as one of the standard developing agents, Elon-hydroquinone being used almost exclusively for the development of papers and very largely for the development of other sensitive materials. Elon is distinguished sharply from paramidophenol hydrochloride by the fact that it is soluble in the cold in its own weight of strong hydrochloric acid, whereas the paramidophenol hydrochloride is insoluble.

*Diamidophenol Hydrochloride* is sold by the Eastman Kodak Co. under the trade name of *Acrol*. It is a steel gray powder darkening easily in the air, and is oxidized so rapidly in solution that it is usual to dissolve it only when required for use.

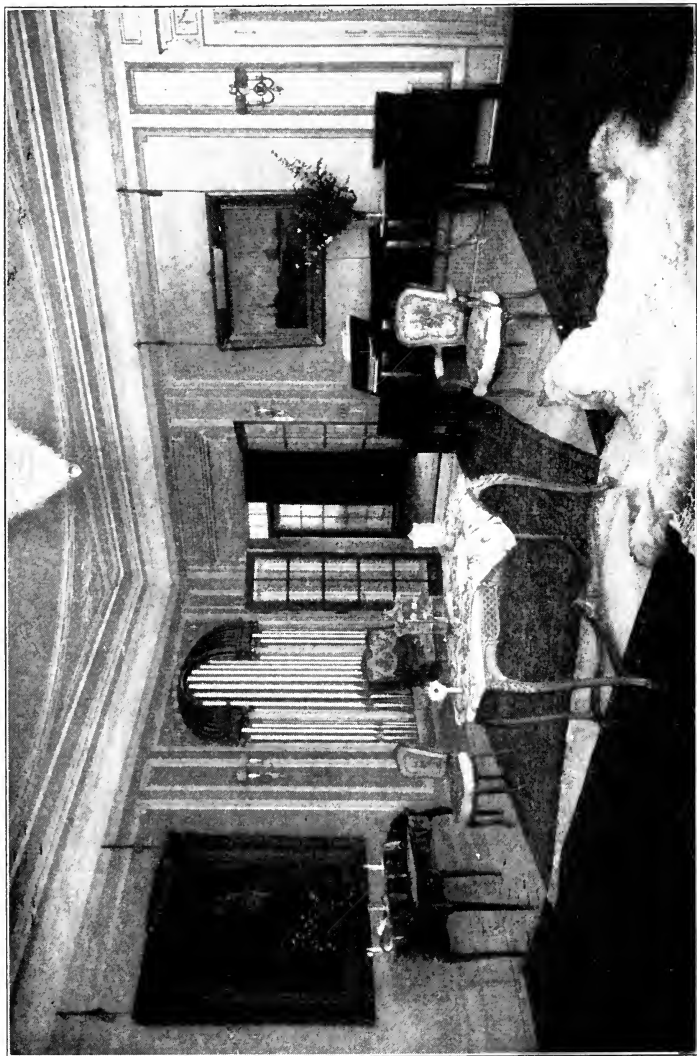


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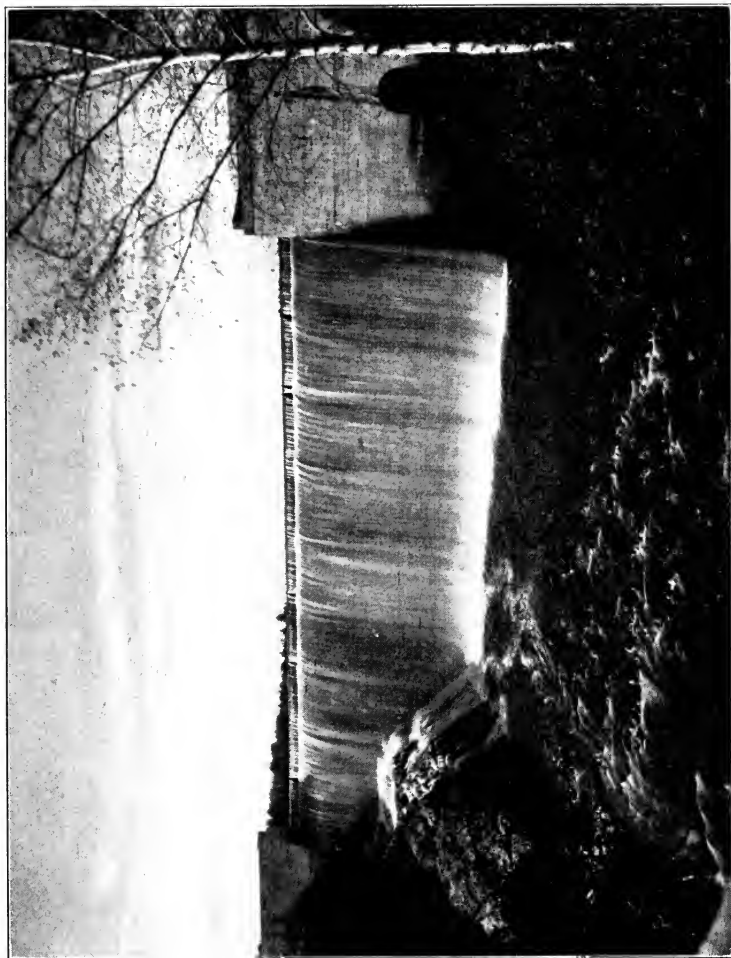


Different reducing agents behave differently in development. We cannot use Elon in the place of hydroquinone and get the same effect. An image developed with Elon comes up very quickly all over the plate and gains density slowly, while the hydroquinone image comes up very slowly but gains density steadily and rapidly. A very little change in the temperature affects hydroquinone a good deal and affects Elon very little, and in the same way a small amount of sodium or potassium bromide affects hydroquinone and does not effect Elon nearly so much. These differences in the developing agents depend upon the chemical nature of the substances themselves, and the particular property to which these differences are due is called the "reduction potential" of the developer.

The reduction potential does not by itself determine the speed with which the developer develops the image, because this depends chiefly upon the rate at which the developer diffuses into the film, and on the amount of developing agent and other substances in the developer. A high reduction potential enables a developer to continue to develop more nearly at a normal rate under adverse circumstances, such as low temperature or the presence of bromide. The reduction potential of a developer, in fact, may be compared to the horse

power of an automobile which for other reasons than the power of its engine is limited in speed. If we have two automobiles and they are confined to a maximum speed of twenty miles an hour, then on level roads the one with the more powerful engine will be no faster than that with a weaker engine, but in a high wind or on a more hilly road the more powerful engine will allow the automobile to keep its speed, while the machine with the weaker engine will be forced to go more slowly. We could, indeed, measure the horse power of an automobile by the maximum grade which it could climb at a uniform speed of 20 miles an hour.

In development, the analogy to the hill is the addition of bromide to the developer, since the addition of bromide greatly delays development, and it is found that the higher the reduction potential of a developer the more bromide is required to produce a given effect. If we measure the developing agents in this way, we shall find that hydroquinone has the lowest reduction potential, then pyro, then Kodol, and finally Elon has the highest. Hydroquinone has so low a potential that it is rarely used alone but is generally used with Elon. Kodol can be substituted for Elon but more Kodol has to be used in order to produce a developer of the



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same strength. Developers with a high reduction potential such as Elon, and to a less extent Kodelon, make the image flash up all over at once because they start development very quickly even in the lesser exposed portions of the emulsion, while developers of low reduction potential, like pyro and especially hydroquinone, bring up the high-lights of the image first and the shadows do not fully appear until the high-lights are somewhat developed.

Developing agents cannot develop at all when used by themselves. With the single exception of Acrol, developing agents in order to do their work must be in an alkaline solution, and the energy depends upon the amount of alkali present. The developers of higher reduction potential, which bring up the image very quickly, require less alkali than those of lower reduction potential. For instance, hydroquinone is often used with caustic alkalis, while the other developing agents require only the weaker carbonated alkali.

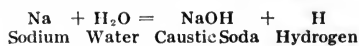
The amount of alkali governs the energy of a developer, and if too much alkali is present, the developer will tend to produce chemical fog, while if too little alkali is present, it will be slow in its action. Alkalis also soften the gelatine of the emulsion, and consequently too alkaline a developer will produce over-swelling and will give trouble

with frilling or blisters in warm weather. This action of the alkali on the gelatine has nothing to do with its developing properties but is merely an unfortunate fact.

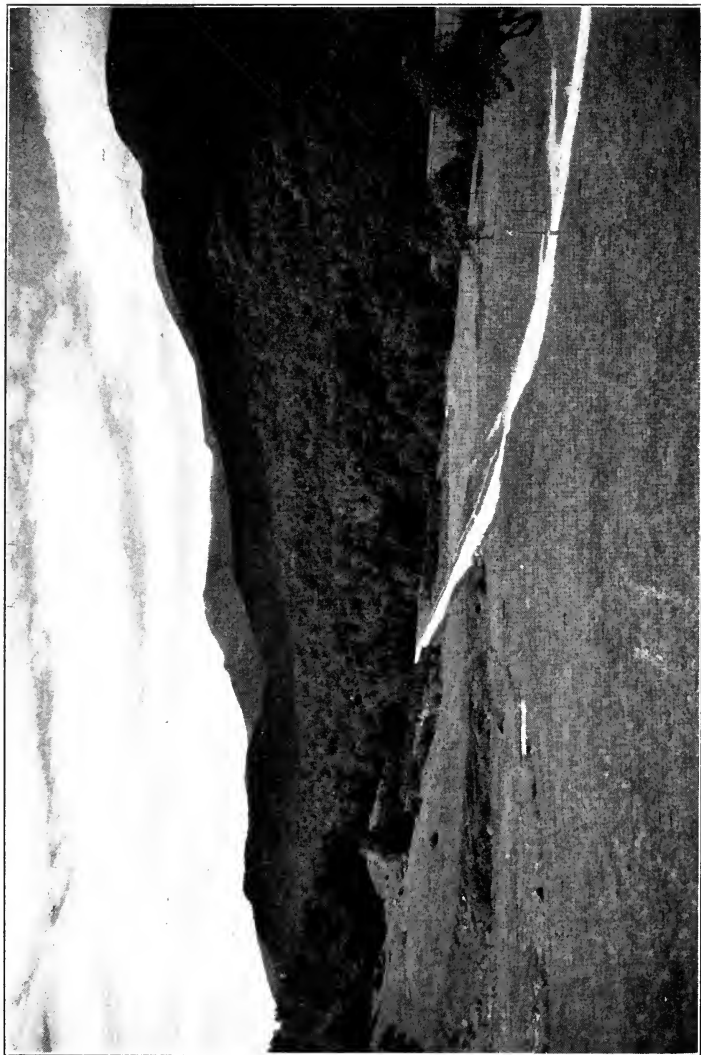
The alkalis used in development are of two kinds: the caustic alkalis and the carbonated alkalis.

Caustic alkalis are produced when the metal itself reacts with water, the metals from which the alkalis generally used are derived being potassium and sodium. These metals are so easily oxidized that they have to be preserved from all contact with air or water by immersion in light oil or gasoline.

If we take a small piece of sodium and place it on the surface of water in a dish, it will react with the water with great violence, melting with the heat produced and buzzing about the surface, while if we restrict its movement, the development of heat will be so great that the hydrogen produced will burst into flame. In the case of potassium, the reaction is even more violent than with sodium and is always accompanied by flame. The reaction may be represented by the equation



the sodium combining with the water to form caustic soda and liberating hydrogen, which comes off as gas, and, as has already been stated, catches fire and burns in the air. This is, of course, not the method by which the



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alkalis are actually produced. As a matter of fact, the metals are produced by electroplating the metal out from the melted alkali.

*Caustic Soda* is made either by the passage of an electric current through a solution of common salt, when the soda separates at one electrode and chlorine gas is liberated at the other, or from sodium carbonate, which is causticized by means of lime. Lime is calcium oxide and is prepared by heating limestone, which is calcium carbonate, the carbon dioxide being driven off from the limestone by the heat. When the lime is added to sodium carbonate, the lime removes the carbon dioxide from the carbonate, and leaves the sodium hydrate in the solution, which is then evaporated to get the solid substance. At present, caustic soda is easily obtained in a very pure state, and there is usually no difficulty in getting good caustic soda for photographic work. It must be protected from the air, since it easily absorbs moisture and carbon dioxide. As its name indicates, it is very caustic and attacks the skin, clothing, etc.

*Caustic Potash* is very similar to caustic soda and is prepared in the same way. Fifty-six parts of caustic potash are chemically equivalent to forty parts of caustic soda.

(To be continued.)



## NOT HALATION

Turn around in your chair so that you face the window squarely; then turn your head so that you are looking at the wall space directly alongside the window but with the light from the window still striking your eyes. If the light is at all bright you will find that the window frame and the

wall beside it seem covered with a haze. You are unable to see sharp detail in that space no matter how long you try.

Now hold this magazine directly in front of your eyes so that it will completely shut out the light of the window but allow you to see the wall alongside. Move it back and forth and you will see that as it comes between your eyes and the bright light, you can immediately see a wealth of detail that was not visible before.

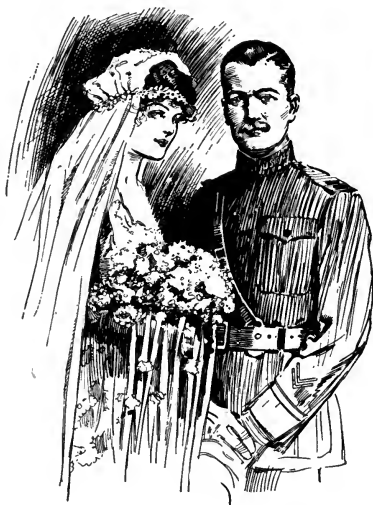
The hazy effect you have just seen is not halation. It is reflected light that has been so scattered over the image your eyes have tried to form that it fogs your vision. If you will close one eye and go through the above experiment again, you will see that wall space as the lens of your camera sees it, and you will find it is much easier to cut out the reflected light than it was with both eyes open.

You get this effect most often in making the so-called Rembrandt lightings in the studio and you often encounter it in home portraiture. The material you use has nothing to do with it as it is not halation—you get it with film as well as with plates—but you may also get halation with it if you use plates.

A lens shade will cut this light out of your lens just as the magazine cut it out of your eyes. If you do not have a lens shade, a dark head screen will answer.

Of course—  
a photograph

*Make an appoint-  
ment to-day.*



## THE PYRO STUDIO

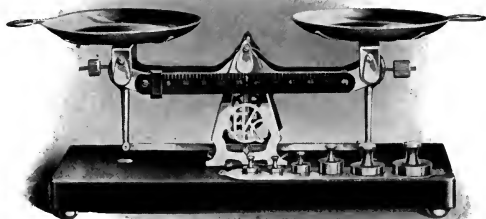
Line cut No. 260. Price, 50 cents.

**T**HE ONLY CONDITION  
We make but one condition  
in our offer of cuts for the use of  
photographers.

It is obvious that two photogra-  
phers in the same town would not  
care to use the same cut, and we are  
therefore obliged to limit this offer  
to one photographer in a town. It  
will be a case of first come first

served. The first order from a city  
will be promptly filled. Succeeding  
orders (if any) will necessarily be  
turned down and the remittance, of  
course, will be returned. It is also  
obvious that we cannot, on account  
of the cost of the drawings, furnish  
any large variety of cuts at the  
nominal prices quoted, and therefore  
can offer no substitute cut. Get your  
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The 7x11 Eastman View Camera No. 2 is an improved model of the Empire State and Century View and embodies every practical convenience. A sliding front board permits the lens to be centered on either half of the film or plate when making two exposures on a 7 x 11.

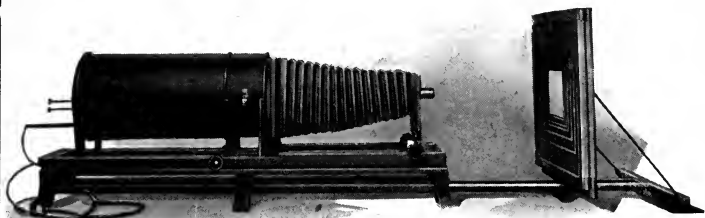
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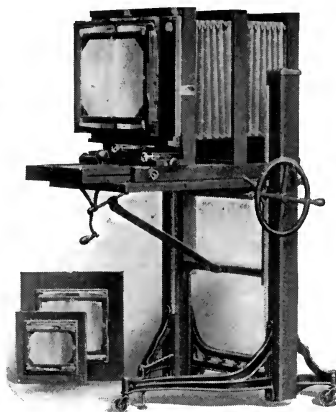
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Interchangeable use of Eastman Portrait Film and Plates in regular View Holders.

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*By Pasquale S. Catolla  
Baltimore, Md.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

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MARCH 1919

No. 1

## PORTRAIT FILM AVAILABLE AT THE PRICE OF PLATES

Ere this magazine reaches you, you should have received a price list for Eastman Portrait Film and for the accessories required for using it. Notice, please, that thus far we have on the Canadian market *Portrait* Film only, Commercial, Commercial-Ortho and Process Film not yet being made in Canada.

The fourth cover page of this number lists holders and sheaths for using films in the existing Cabinet Studio Outfits, particulars being given in the price list you recently received.

Figure for yourself what the lightness of Film means in the matter of transportation. Film is about one-tenth the weight of plates, quantity for quantity of the same area. The Film user can get his supplies at a greatly reduced cost of transportation, having them come by the quick Parcel Post or Express services, as against the slow, disappointing

freight shipment that is required by the weight of plates.

In Home Portrait or View work you can carry ten times as many loaded film holders as you could plate holders, so far as weight goes.

It is in the handling of difficult lightings that Portrait Film immediately demonstrates its superiority over glass plates.

Better than plates with any lighting, it is plainly so as the lighting becomes difficult—and the harsher the contrasts the more pronounced is its superiority.

We have been careful to reproduce in Canadian STUDIO LIGHT, month by month, all the matter dealing with Film superiority. The emulsion itself is on a par with Canadian Seed Plates, and this, in combination with the halation-avoiding, detail-conserving function of the thin base, renders Portrait Film the obvious means of securing better results.

## MAKE THE APPRENTICE EFFICIENT

A great deal of thought is being given, both here and abroad, to the proper training of apprentices and to the finding of light work for those who have been discharged from the service, unable because of some injury to resume their previous occupations.

There are many branches of photographic work that require skill and practice rather than originality, and such work can be taught the apprentice whether he has a natural talent for photographic work or not.

In previous articles we have given suggestions for the training of apprentices in developing, printing and after-processes, and we think it is quite essential that copying should be made a part of the training of an apprentice. Copying should certainly come before the making of sittings, if the apprentice aspires to be an operator, for a thorough knowledge of copying will lead to a better understanding of other branches of photographic work.

To many photographers who are operators, copying is distasteful. There is satisfaction in creating a thing but not in reproducing the creation of another. For this reason there are more poor copies made than there should be.

There should be the same incentive to produce a good copy as a good original, and if you are a photographer who dislikes copying, we would suggest that you teach another to do this work well and then get as much of it to do as you can.

The advantage in copying is that you are sure to please your patron if your copy is as good as the original, and you can often make it better. The important things are to light the copy right, to use the right material, to expose right and develop right. This seems very simple and is, but there are chances for failure.

It is best to light the copy from both sides to eliminate grain if the print to be copied is on rough paper. The photo-engraver uses an arc light at each side of his copy, and many commercial photographers use the same arrangement for similar work. It is a simple matter to arrange two fairly high power lamps with reflectors that will throw the light directly on the copy.

The great advantage in artificial light is that it is sufficiently constant to enable one to judge the necessary exposure with the greatest accuracy. But where subjects vary greatly exposures will also vary greatly. The print that is yellowed with age or the sepia toned print on buff stock will often lead one to underexpose. It must be remembered that the yellowed highlights must



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*By Pasquale S. Culotta  
Baltimore, Md.*



have sufficient exposure to produce sufficient density in the negative regardless of the rest of the image.

Another mistake is to misjudge the contrast of the print that is to be copied. When the original photograph was made, part of the subject was in full light and part of it was in shadow, as is the case whenever you photograph a person, or an object that is not flat. When you copy the print all of it is in full light. There are no shadows produced by your light—only several tones, all in full light, and from every part of the paper on which the print is made there is much more light reflected than there was from any of the shadows of the original. You must make a negative that will, as nearly as possible, duplicate the contrasts of the negative from which the print you are copying was made.

For the reasons given above, an emulsion of considerable contrast must be used or contrast must be secured in some other way. A slow emulsion in most cases will give the contrast desired. Royal Process or Seed 23 Plates will give excellent results. If the print is yellowed with age a color-sensitive plate and a yellow filter will help you to secure increased contrast.

If Wratten Filters are used and the color of the filter is darker than the color of the yellowed highlights they will pho-

tograph as though they were white. Commercial Ortho Film or a Wratten Panchromatic Plate and the G Filter will usually give best results, though a lighter yellow filter such as the K2 may often be used.

Whether there is color to contend with or not a color-sensitive film or plate and a yellow filter will help contrast by cutting out a great amount of the surface reflection that flattens the copy negative.

Exposure is important, and much longer exposures will have to be given when filters are used. The results are worth the trouble, however, for if a print is yellowed with age and the yellow is eliminated by using a filter, the result is the same as would be secured if your copy negative had been made from a fresh, brilliant print.

Aside from the use of filters, the proper judgment of the strength of light and the exposure required for the nature of the print to be copied, the increased length of bellows and its effect on the value of your stops must be considered.

If you are making a copy the exact size of the original with a lens of 8-inch focus, the distance from lens to plate will be 16 inches and your f. 8 stop will be reduced in value to f. 16 and other stops in proportion.

The stop value is determined by dividing the effective aper-



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*Baltimore, Md.*



ture of the stop into the focal length of the lens. The f. 8 stop of a lens of 8-inch focus would be 1 inch in diameter. With the bellows extended to 11 inches or 16 inches or 22 inches, the f. 8 stop would have a value of f. 11 or f. 16 or f. 22.

Failure to take this change of stop values into consideration has been responsible for much of the under-exposing of copies. Even a modern lens with its focal length given and its stops plainly marked is puzzling enough to a beginner, but if he is required to work with a lens of unknown focal length and stops that are not marked, he can not be expected to solve the problem.

The best method of determining exposures under such conditions is to make test exposures, and there is a right and wrong way of doing this. The main point is to get a difference in the exposures sufficiently great that it will be possible to determine the correct exposure with fair accuracy.

Place a kit in your holder that will take a small plate, say a 4 x 5, then push the slide in to a point where about one-quarter of the plate will be covered and make a pencil mark on the slide so you will be able to place it in the same position when the holder contains a plate and is in the camera. Mark the points on the slide where half and three-quarters of the plate are covered, and

you are ready for your test exposures.

Supposing that the shortest likely exposure that might give you a result is fifteen seconds: Draw the slide to the first mark and give one quarter of the plate this exposure. Cap your lens, draw the slide to the point where one-half of the plate is covered and give a second exposure of fifteen seconds. You now have a strip of plate that has 15 seconds exposure and the remainder 30 seconds exposure. Draw the slide out to the third mark and make an exposure of 30 seconds, and you have exposures of 15, 30 and 60 seconds. Draw the slide all the way out and make an exposure of 60 seconds and you have exposed strips of 15, 30, 60 and 120 seconds. The plate should then be developed fully at normal temperature, 65°F., preferably in a tank, and not examined until fixed. With such a variety of exposures it is a simple matter to determine which one is most nearly correct, or to split the difference if one strip is under-exposed and the one next to it over-exposed.

Use a little material and spend a little time in making your apprentice efficient in any line of work, and in the end you will have saved time and material. If you are training an apprentice you will find that the more he learns the greater will be the interest he takes in his work. A





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little encouragement gives him greater incentive to do better work, and if he is at all industrious, he will soon become expert.

Knowing that you have such a workman and that you can depend upon him to produce results that will be a credit to your studio, you will naturally make an effort to keep him busy.

Many photographers have materially increased their business by specializing in copying and, in many cases, their customers have been those who have not been accustomed to visiting a studio. If they are pleased with the treatment and the work they receive they are the best of prospects for new business. It is the new business that makes your business grow.



Every time you  
encounter halation  
Every time halation  
ruins a *plate* result  
just remember:

PORTRAIT FILM

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## THE MAN WHO MADE PICTURES

Interest in any illustrated magazine naturally centers in the pictures, and we think this is especially true of a photographic magazine. As it is natural to look for ideas in the work of others, we try to select for our illustrations, examples of a man's work that will most nearly represent his ideals and that will give to others some idea of the nature of the work that has contributed to his success.

Next to interest in the pictures is the interest they arouse in the man who made them, his personality, his methods and the material he uses.

Mr. Pasquale S. Culotta is one of Baltimore's youngest yet most successful photographers. He has built up an excellent business from a very modest beginning and has well earned the success he has achieved.

We would judge that Mr. Culotta's work has been largely influenced by the several years art education which gave him a fundamental knowledge of what a good portrait should be. His portraits show that he not only knows, but is equally well able to apply his knowledge of art to the productions of his camera.

A further indication of the influence of his early training is shown by the fact that his very excellent business is, what we



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might term, of the exclusive sort. His appeal has always been to a class of patrons who thought of quality rather than price—who sought the artistic and knew when they had found it. There are many roads to financial success, but this is certainly one of the most difficult ones.

Mr. Culotta is always pleased to meet and discuss his methods with other photographers, and is a very pleasing man to meet. His new studio is very complete, and it may be interesting to mention that he uses artificial light exclusively. One or several 1000 watt lamps are used, depending upon the effect that is to be produced. He favors reasonably soft focus effects, and while he puts a certain amount of his own individuality into his work, he always strives to portray the characteristics and individuality of his sitter.

As for the material he uses exclusively, both for studio and home portraiture, we can do no better than use Mr. Culotta's own words:

"For my negatives, I find nothing which can take the place of Portrait Films. They have every good quality that science and art have been able to produce, and I also find Artura Iris the only medium which registers fully what I endeavor to see in my subjects.

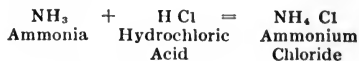
"I would ask that you accept my sincere thanks and keen ap-

preciation for your efforts in giving the profession such productions."

## THE CHEMISTRY OF DEVELOPMENT

(PART TWO)

An alkali which was often used with pyrogallol in the early days of photography, but which is rarely used nowadays, is ammonia. Nitrogen combines with three times its volume of hydrogen to form a gas,  $\text{NH}_3$ . This gas is known as ammonia and is very soluble in water, its solution being strongly alkaline. Ammonia combines directly with acids to form salts which are similar to the salts of sodium and potassium. Thus with hydrochloric acid it forms ammonium chloride, which is similar to sodium chloride and potassium chloride:



Ammonia is a somewhat weaker alkali than soda or potash but stronger than the carbonates. For use in development it has the disadvantage that being used in the form of a solution of a gas its strength is somewhat uncertain and variable, the ammonia escaping from the solution. Also, it is a solvent of silver bromide and tends to produce colored fogs which are not so easily produced with other alkalis.



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*Baltimore, Md.*



*Ammonia Solution* is commercially prepared from the ammoniacal liquor obtained in the distillation of coal for coal gas. The liquor is neutralized with sulphuric acid, the ammonium sulphate crystallized out, and the ammonia gas liberated from the sulphate with lime and led into water, in which it dissolves. The solution is usually free from impurities.

Ammonia solutions are prepared commercially in two strengths, "ammonia water," containing 10% of ammonia gas by weight and having a specific gravity of .96, and "stronger ammonia water" containing 28% of ammonia by weight and having a specific gravity of .90.

The alkalis generally used for photographic work are not the caustic alkalis but the carbonates, which are salts of carbonic acid,  $\text{H}_2\text{CO}_3$ . Carbonic acid is a very weak acid, so that in solution the carbonates are not neutral but alkaline because of the predominance of the strong base over the weak acid, the carbonate being, to some extent, split up into the bicarbonates or acid carbonates and the caustic alkali. The use of a carbonate in development therefore represents a sort of reservoir of alkali, only a small amount of alkali being present at any time, but more being generated by dissociation of the carbonate as it is used up. If instead of using carbonate we were to use for development a solution containing a proportional amount of caustic alkali, we should have only a small amount of alkali present, and it would

soon be exhausted. The use of carbonate therefore enables us to employ a small concentration of alkali and yet to keep that concentration nearly constant during use.

When a salt is dissolved in water at a high temperature until no more will dissolve and then the solution is allowed to cool, the salt will generally be deposited in crystals; sometimes, as in the case of silver nitrate, the crystals consist of the pure substance, but more often each part of the salt combines with one or more parts of water to form the crystals. This combined water is called "water of crystallization." Thus, crystals of sodium carbonate formed from a cool solution contain ten parts of water to one of carbonate, and their combination should be written



What is called in the last paragraph a "part" of sodium carbonate,  $\text{Na}_2\text{CO}_3$ , will weigh 106 units, while a "part" of water,  $\text{H}_2\text{O}$ , weighs 18 units, so that the crystals of sodium carbonate contain 106 parts by weight of sodium carbonate and 180 parts by weight of water, and consequently crystallized sodium carbonate contains only 37% of dry sodium carbonate. If sodium carbonate is crystallized from a hot solution only one part of water is combined in the crystals with each part of sodium carbonate so that they have the compo-

sition  $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$  and contain 85% of dry carbonate. Sodium carbonate containing ten parts of water of crystallization loses nine of them by drying in the air and breaks up, forming the compound with one part of water. This last part of water is only removed with difficulty by heating in the air, when the dry carbonate is formed, containing only a small residual amount of water and about 90% carbonate.

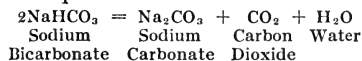
When exposed to the air chemicals often either absorb or give up water. Those which absorb water are said to be "hygroscopic," and if they absorb so much that they dissolve and form a solution they are said to be "deliquescent." Chemicals which give up water to the air, so that the crystals break down and become covered with powder, are called "efflorescent."

*Sodium Carbonate* comes on the market in three forms:

Crystals with ten parts of water,  $\text{Na}_2\text{CO}_3 \cdot 10 \text{H}_2\text{O}$  containing 37% of the carbonate; Crystals with one part of water,  $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$ , containing 85% of the carbonate; Dry powder containing 98% of the carbonate.

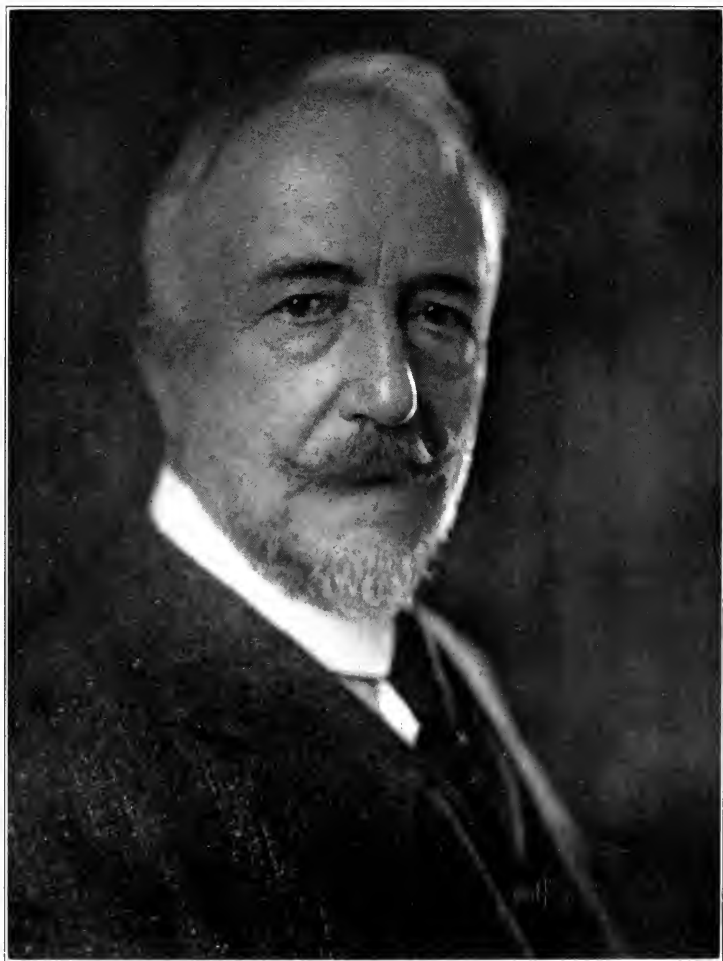
The carbonate is made by treatment of salt solution with ammonia and carbon dioxide which reacts with the salt to produce sodium bicarbonate,  $\text{NaHCO}_3$ . The bicarbonate is heated and half of the carbonic acid is driven off, producing crude sodium carbonate, which at this stage is known as "soda ash." This is then dissolved in water

and crystals of "sal soda," containing ten parts of water, are produced. From this a crystalline salt with either ten or one parts of water is prepared for photographic use, but owing to the uncertainty of the composition of these crystals it is better to prepare the pure dry carbonate. This is obtained by heating the pure bicarbonate which can be precipitated from a solution of sal soda by means of carbon dioxide gas. When the bicarbonate is heated in the air, half of the carbonic acid is driven off, and sodium carbonate,  $\text{Na}_2\text{CO}_3$ , is produced according to the equation:



The exact amount of heating is very important. If it is not done for sufficient time there will be a large amount of bicarbonate left in the product, and bicarbonate is practically useless as an alkali in photography. On the other hand, if heating is continued too long, caustic soda will be produced. In the preparation of photographic carbonate the heating should be continued so that the material is almost pure sodium carbonate containing practically no bicarbonate but is very slightly on the alkaline side. Much caustic soda would be fatal, but it is better to have a trace of caustic soda than bicarbonate. The preparation of carbonate of soda is a matter to which the greatest attention is given by the Eastman Kodak Company, and the Kodak Tested Carbonate is specially prepared to meet the needs of the photographer.

*Potassium Carbonate*, also known as *Salts of Tartar*, is sometimes used instead of sodium carbonate as a component of developers. It has the advantage of greater solubility and is a stronger alkali than the sodium compound. It is prepared in a manner similar to



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*Baltimore, Md.*



sodium carbonate as a dry powder, but it absorbs water very readily and must therefore be kept in well sealed bottles.

Owing to the fact that developers are necessarily substances which have a great affinity for oxygen and that the air contains oxygen, developing solutions containing only the developing agent and alkali would be rapidly spoiled from oxidation by the air. In order to make the developer keep there is added to the developing solution, in addition to the reducing agent, an alkali and some sulphite of soda. Sulphite of soda has a very strong affinity for oxygen, being easily oxidized to sulphate of soda so that it protects the developer from the oxygen of the air, thus acting as a "preservative." This action of the sulphite is very easily seen with the pyro developer. The oxidation product of pyrogallol is yellow, and this oxidation product which is formed in development is deposited in the film along with the silver, so that if we use a pyro developer without sulphite we shall get a very yellow negative, the image consisting partly of silver and partly of the oxidized pyrogallol. If we use sulphite in the developer, the image will be much less yellow because the pyrogallol will be prevented from oxidizing, the sulphite being oxidized instead, and finally if we add a great deal of sulphite, we shall get almost as blue an image

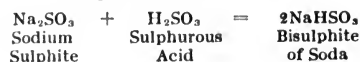
as with Elon, the oxidation product of which is not colored.

*Sodium Sulphite* is prepared by blowing sulphur dioxide gas into a solution of carbonate of soda. When sulphite is crystallized from the cooled solution it forms crystals containing seven parts of water to one of sulphite, of the composition  $\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$  which contain, when pure, 50% of dry sulphite. These crystals give up water when kept in the air and form a white powder on the surface. Since sulphite when exposed to the air has a tendency to oxidize to the sulphate and as the sulphate is not a preservative, it is well to view with suspicion sulphite which has effloresced to a great extent. A quick rinse in cold water will remove the white powder from the crystals.

Sulphite free from water is produced by two methods: by drying the crystals, which produces what is called the "desiccated" salt, containing about 95% of pure sulphite, and by precipitation from hot solutions which gives a compound generally called "anhydrous" sulphite, and which contains as much as 98% of sulphite.

Eastman Tested Sulphite is the desiccated salt, and is prepared in a very pure state, almost free from sulphate. If prepared in this way as a dry powder the sulphite will keep well for a long time.

Sodium forms a number of compounds with sulphurous acid in addition to sodium sulphite itself. Thus we have sodium acid sulphite or bisulphite,  $\text{NaHSO}_3$ , which may be regarded as a compound of sodium sulphite with sulphurous acid:



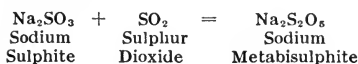


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*By Pasquale S. Culotta  
Baltimore, Md.*



Again we have sodium metabisulphite, which is a compound of sodium sulphite with sulphur dioxide:



These acid sulphites are very similar in their properties and probably form the same solution when dissolved in water.

*Potassium Metabisulphite* is often used as a preservative. It forms good crystals and is convenient in use, but is very costly in comparison with sodium bisulphite.

*Sodium Metabisulphite* has been introduced to take the place of the potassium salt owing to the scarcity of potash.

*Sodium Bisulphite*, when pure, is a white salt which has acid reaction, often containing a slight excess of sulphur dioxide. Since sodium sulphite is an alkaline salt owing to the predominance of the strong base, soda, over the weak sulphurous acid, a neutral solution can be produced by adding a small amount of bisulphite to sulphite, and this neutral sulphite solution has found extensive application as a preservative for a pyro-soda developer. Bisulphite is used very largely as a preservative for fixing baths, supplying both the sulphite and the acid necessary.

It is difficult to prepare bisulphite free from iron, and any iron in the bisulphite produces a dark color when used for making up a pyro solution.

Recently, the Eastman Kodak Company have succeeded in obtaining an entirely satisfactory bisulphite and have listed it among their Tested Chemicals.



## PICTURES THAT SELL MORE PICTURES

A well-known photographer received a call from a great surgeon who wished a portrait made. Of course, he made no suggestions, for he was a professional man who would not have accepted any suggestions himself had the photographer come to him for an operation. He was tall and lank—the kind of a man that some photographers would have photographed in a sitting position, doing everything possible to make him appear less long and thin.

But this photographer did nothing to camouflage his subject. He did not even attempt to give grace to his bearing. He took him in an attitude that all who knew him would recognize as characteristic of the great man.

Did he complain when he saw his proofs? Most certainly not. He said: "That's bully, man; you've got all my gauntness." Of course, we couldn't say whether his wife was pleased with these portraits, but you expect to get business from men through the influence of men. And a man will not hesitate to give his portrait to a friend if it is a real man's portrait.

You photograph a lot of men, but do the pictures you make of men appeal to other men as well as to your customer and his family? A photograph may be a

perfect likeness, it may be a pleasing portrait, or it may be a strongly characteristic portrait.

The perfect likeness may be merely a map of the man's features and it may or may not be pleasing.

The pleasing likeness may be entirely satisfactory to the man and his family—it may even be flattering and still be a good likeness but void of any indication of character.

The characteristic portrait is a good likeness but is seldom flattering. It portrays not the man alone but the character of the man as well. If he is a fighter, it shows fight; if he is a student, it shows thought; if he is a man of strong will, it shows determination; if he is a poet, a musician, a diplomat, a miser or a philanthropist, it shows those characteristics of the man he expresses in his everyday life.

In which of these classes do your portraits of men fall? If in the first class, you are merely working along mechanical lines, photographing people as you would photograph furniture. If your work falls in the second class you are pleasing people with pleasing pictures which most likely appeal to vanity. Such an appeal is, however, not the most lasting. The man who approves of such a picture will more likely than not, hide it from the men who are his associates.

If your work falls in the third

class you are in a fair way to call yourself a specialist, for you have solved the problem of what appeals to men and will bring you the greatest volume of business from other men.

If a man has strength of character it shows in his face and his expressions and he doesn't want it covered up or retouched out. Neither does he care for the studio smirk. You have probably noticed that real men will invariably reject the proof that shows them smiling. It may please for a while, but it doesn't wear well and men don't like it.

If the same rule applied to women you would hold the same course and have plain sailing. But it doesn't. All women are beautiful, but all women do not photograph well. Some have beautiful features, while others owe their beauty to attractive manners, vivacity or something in the nature of spiritual goodness or beauty that is difficult to describe and still more difficult to photograph.

It is permissible and quite necessary to idealize the portrait of a woman just as the painter does. An atmosphere must be created for her—accessories must be light and dainty, the retoucher's pencil must remove a blemish, or the etcher's knife improve the turn of her chin or the curve of her neck, all, however, without destroying the likeness. Every photographer knows the means

employed, but some have more skill or intuition or artistic judgment than others and know just what to do to make the portrait pleasing.

The woman who is beautiful when animated is often a disappointment the instant you say: "Now be perfectly still for just a second." Don't make such a remark. Keep her animated and make your exposures the same as you would for a child's portrait. You will have failures, to be sure, but one good negative will make up for a dozen failures.

You may wonder at times how one photographer gets a bigger price for his work than another, but if you could see the discarded negatives—the misses he has made, possibly on one child, or a woman that was difficult to get with a good expression, you would probably see why he has to charge a good price for the good result.

If you will take notice of the work of a successful photographer of children you will find the pictures are even higher in key than those of women. Their atmosphere should be one of sunshine. There are few shadows in their lives—there should be fewer in their pictures. Throw the blinds open and let the sunshine in. Make broad, flat lightings, use light grounds and light accessories, use your lens wide open and don't say "hold still."

It isn't natural for children to hold still and pose. That's why

you have trouble in posing men. They are grown up children and have less natural dignity than women. When a man relaxes and forgets his business cares his natural inclination is to play. Children are never natural when posed, so why pose them? Let them play, and watch for the opportunity to catch a pleasing picture.

There are easier ways of making photographs that will pass—that will be accepted and paid for, but they will not cause your customers to pass the word along to others that you are a great photographer.

You may have a few women down on your head for making pictures that do not idealize their husbands, but so long as you please the men you will get other men's business, and so long as you please the women you will get other women's business.

Make it your policy to make pictures that will sell more and still more photographs.



## COMPLAINTS ARE ADJUSTED

More promptly and more satisfactorily when you bring them direct to our attention than when you use the stock house as an intermediary, for the matter necessarily is referred to us. Always send a sample of your results and some of the unexposed material, carrying your initials or other mark.

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We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

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THE PRICE

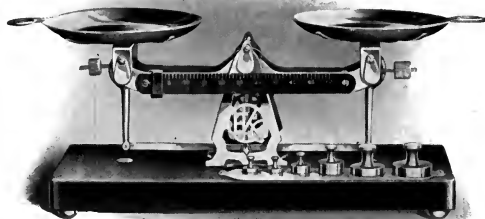
1 oz. bottle . . . . .	\$ .92
$\frac{1}{4}$ lb. bottle . . . . .	3.30
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There are no small, loose weights—just a sliding weight on a beam and the larger weights for ounces and fractions of ounces, avoirdupois. All bearings are of hardened steel; the beam is black with white markings; all other parts are nickeled.

### THE PRICE

Eastman Scale . . . . . \$6.00

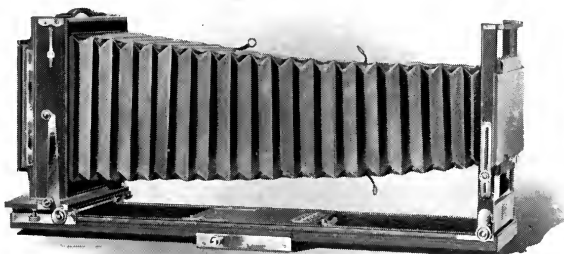
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For either vertical or horizontal subjects, the proportions of the 7 x 11 picture are better than those of the 8 x 10. Especially suitable for groups, architectural subjects and landscapes. The pictures look larger and sell better, yet the material costs no more.

The 7x11 Eastman View Camera No. 2 is an improved model of the Empire State and Century View and embodies every practical convenience. A sliding front board permits the lens to be centered on either half of the film or plate when making two exposures on a 7 x 11.

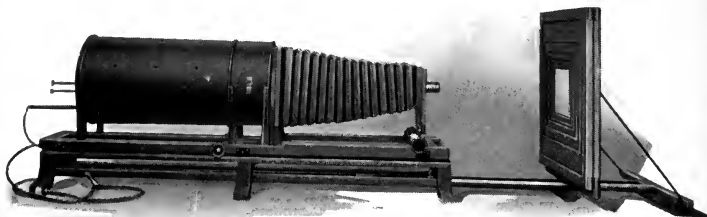
Eastman View Camera No. 2, 7 x 11, with case  
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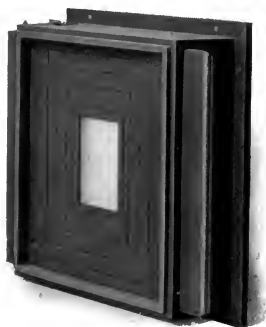


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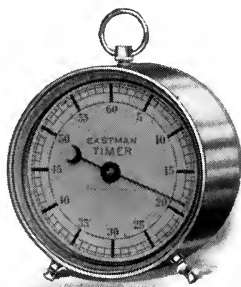
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Per tube (powder form) . . . . . \$ .15  
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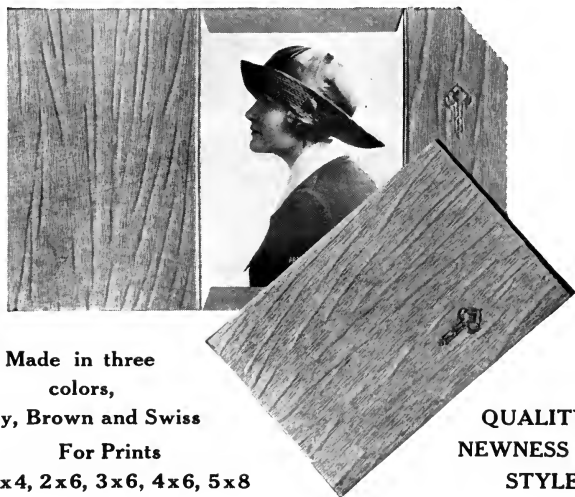
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*From a Demonstrator's  
Negative*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE · THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

APRIL 1919

No. 2

## WHAT FILM MEANS TO YOU

Photography has made a most wonderful advance in the last five years, and in making this statement we do not have in mind the wonderful accomplishments in war photography.

Portrait photography has taken the longest forward step since wet plates gave way to dry plates, and Eastman Portrait Film has made the step possible.

Just as there were limitations in wet plate photography which the dry plate overcame, so there are limitations in dry plate photography which film overcomes.

Printing processes have improved wonderfully, but a print can never do more than reproduce what the negative has recorded. And so long as the negative material has limitations, just so long will the photographer be bound to work within these limitations.

It is in the handling of difficult lightings that Portrait Film

immediately demonstrates its superiority over glass plates, and it is in the making of difficult lightings that the photographer is enabled to break away from the commonplace.

If we were explaining the above point to the public—those unfamiliar with photography—it might be difficult to make our point clear, for, to the layman, the most commonplace lightings are those natural lights of the home in which he sees his family and friends, while to him, the difficult lightings would be the unnatural ones in which his family and friends are usually pictured under the photographer's skylight.

It is easily understood why home portraiture met with the instant approval of the picture-buying public and why Portrait Film met with the instant approval of the home portraitist.

With plates the photographer

was compelled to modify the conditions of light he encountered in the home—with film he could cast aside all semblance of studio effects and photograph his subjects as he found them, retaining the home atmosphere in his pictures.

The results were often startling to the photographer. His success in one difficult lighting gave him the incentive to create new effects. Purely conventional lightings became the exception rather than the rule, with the result that customers were pleased with the great variety and naturalness of home portraits.

The newness and freshness of home portrait work on film set a new standard for the work of the studio photographer. And Portrait Film has enabled him to meet it—to give full play to his originality—to give a new note of interest to his portraits and added prestige to himself as a photographer.

When the photographer has reached the point where he has exhausted the possibilities of his working material, there is no incentive for him to change to another material unless it offers newer and broader possibilities. This is exactly what Portrait Film does.

Watch the work of the man who uses film—ask him why he uses film, and what film enables him to do that he cannot do with plates. And when you have

found his real reason for changing from plates to films, when he has told you of the ease with which he can reproduce the most difficult lightings, the full range of gradations from sunlight to shadow—of how he can even photograph into the light without fear of halation, then ask him something of the convenience of film.

There is a very real and tangible reason for the continued doubling and trebling of film sales, for the continually growing list of prominent photographers who are film users and for the way in which they stick to film, once they have used it.

It isn't the convenience or the economy of film that has made its success, though these are contributing factors. It is film quality—the quality that has broadened the entire field of photography—the quality that will enable you to be a better and more versatile workman.



*Pages 25, 26 and 27 show the detailed price list of Portrait Film and the accessories for using Film.*



*Pages 30 and 31 introduce P. M. C. Bromide Papers to Canadian Photographers.*



EASTMAN PORTRAIT FILM, ARTURA PRINT

*From a Demonstrator's  
Negative*



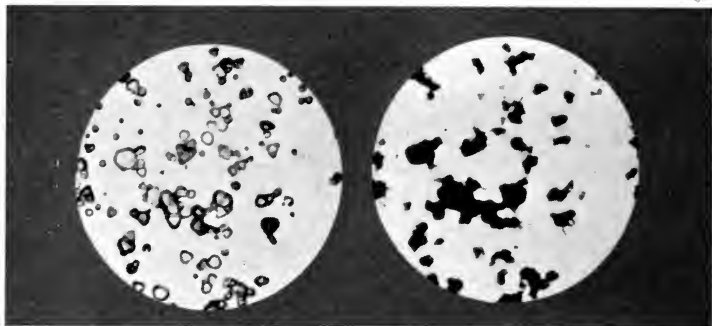


Fig. 1

## STRUCTURE OF THE DEVELOPED IMAGE

Every photographer has had a desire to see the grains of silver as they appear in an emulsion and as they appear in the negative after development. Experiments in our Research Laboratory have given us some excellent photomicrographs which are of unusual interest.

In Figure 1, the photographs, taken through a very powerful microscope, show crystals of silver bromide before development, on the left, and on the right, some crystals that have been changed into metallic silver by development.

The crystals before development are transparent except where they are seen sideways or where their edges appear darker. After development the clear yellow silver bromide is turned into a black coke-like mass of silver

in exactly the same position as the crystals from which it was formed.

You never see these silver grains with the naked eye. When you look at a negative it appears perfectly smooth, but under a small degree of magnification it begins to show an appearance of graininess. What you really see is large masses or clumps of grains. With an increase in the magnification you also see the smaller clumps of grain and finally, at a very high magnification, you see the grains themselves. Figure 2.

The clumps of grains seen under low magnification are made up of grains which are in several layers. This can be seen by making a photograph looking down on the surface and then cutting through it and making a photograph of the cross section to see how the grains lie one below the other. In Fig. 3A it will be seen that the image is as much as six

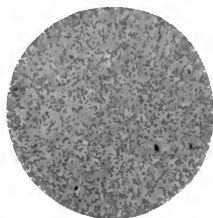


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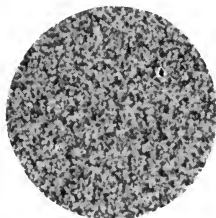
Made directly against the light

*From a Demonstrator's  
Negative*

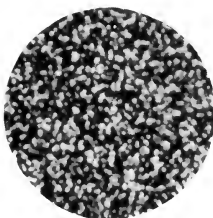




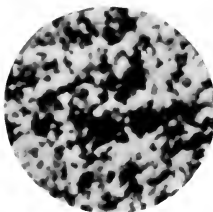
Enlarged 20 diameters



Enlarged 100 diameters



Enlarged 400 diameters



Enlarged 900 diameters

Fig. 2



Fig. 3A—Cross Section

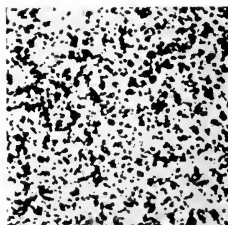


Fig. 3 B

grains deep, so that many of the clumps of grains seen in Fig. 3B are not made up of grains in the same layer, clumped together, but grains in different layers entirely separated.

The distribution of developed grains in the depth of the film is interesting. It might be thought that with short exposures the image would be on the surface of the film and that as exposure was increased the light would penetrate farther into the film making the grains in the lower layers more and more developable. This sometimes seems to be the case, but with most emulsions it is not, as the illustrations in Fig. 4, cut from a film, will show.

All four of these examples were fully developed so that any effect development might have





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Negative*





Fig. 4—No. 1



Fig. 4—No. 2



Fig. 4—No. 3



Fig. 4—No. 4

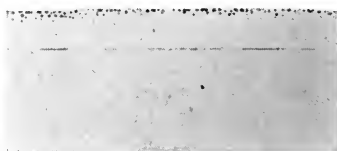


Fig. 5—No. 1

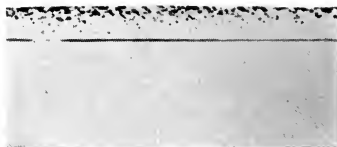


Fig. 5—No. 2

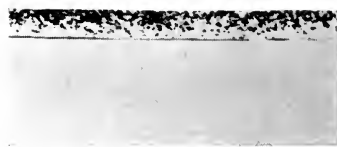


Fig. 5—No. 3



Fig. 5—No. 4

on the result is eliminated. They show that the grains are exposed in all parts of the film to an almost equal extent, though in the second and third examples there is a slight tendency for the image to be more on the top of the film.

While we do not know for a certainty, it looks as though the emulsion contains grains of vari-

ous degrees of sensitiveness, and the more sensitive grains are made developable first.

During development, however, there is an appreciable effect due to the penetration of the developer into the film. This is shown in Fig. 5. It is seen that at the beginning of development, only the silver grains near the surface are developed, and then as the



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Negative*



A



Developed with strong developer

A



Developed with weak developer

Fig. 6

developer penetrates into the film it develops more and more deeply into it.

In the case of a strong developer this effect is accentuated because a strong developer will develop the surface to good density before it has penetrated through the emulsion. A weak developer will penetrate at the same rate as a strong developer but will not develop so rapidly, so that with a strong developer there is a tendency for the image to be confined to the surface of the emulsion, and with the weaker developer, for it to penetrate through the whole emulsion.

This effect is plainly shown in Fig. 6 where two photographs are shown of the edge of a developed image, the image being shown as the dark part on the left, while on the right is the slight deposit of grains due to fog which is always more or less present.

In the upper picture the image

was developed with a very strong developer, while in the lower picture it was developed with a much weaker developer. It will be noted that the weak developer has penetrated right through the image to the back, while the strong developer has only penetrated about half the thickness of the emulsion, although care was taken to develop the images to the same apparent density.

There is a curious effect shown in these photographs at the point marked A. It is seen that at the edge of the developed image the fog grains are not developed in the lower part of the film but appear as if they had been eaten away. There is no doubt that the reason for this is that the bromide liberated during development of the heavy image has prevented the fog grains close to the edge of the image from developing. In extreme cases this will sometimes surround a dense image with a distinct line.



EASTMAN PORTRAIT FILM, ARTURA PRINT

*From a Demonstrator's  
Negative*



## TO MAKE A WOODEN WASHING AND FIXING TANK FOR PORTRAIT FILM

It is a difficult matter to find large tanks of suitable proportions on the market, but a wooden tank for fixing and washing film negatives can be easily built in accordance with the plans herewith. The tank may be built of one inch cypress, white pine or white-wood.

Referring to the accompanying diagrams, "Fig. 1" shows the top view of a three section tank. This will accommodate either 8x10 or  $4\frac{3}{4} \times 6\frac{1}{2}$  film developing hangers. The width of the box is  $10\frac{3}{4}$  inches inside measurement and each of the three compartments will take 16 8x10 developing hangers or 48 in the three compartments, and by removing crossbars over 50 hangers can be handled at one time. The crossbars are spaced  $7\frac{3}{4}$  inches apart which gives room

for the  $4\frac{3}{4} \times 6\frac{1}{2}$  developing hangers. These crossbars should be  $1\frac{1}{2}$  inches wide, otherwise the ends of the hangers will hit each other when being moved back and forth. The box will accommodate seventy-two film hangers. The crossbars should also drop down into the tank  $2\frac{1}{2}$  inches, so as to extend below the shoulder of the developing hanger and prevent it from sliding sideways. A three compartment tank built of one inch material measures  $28\frac{1}{4}$  inches in length,  $12\frac{3}{4}$  inches in width and 12 inches high outside measurements.

"Fig. 2" shows a side elevation of the tank. The dimensions for either a washing or fixing box will be the same, but the intake and outlet openings are required for a washing tank only. However, a hole at the bottom of the box at one end with a plug may be desirable for draining off the hypo bath.

The tank can be built by a carpenter and we would suggest

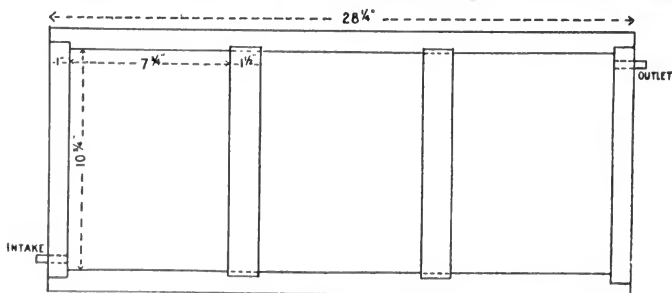


Fig. 1—Top View of Tank

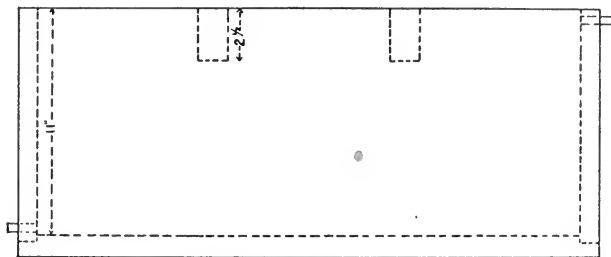


Fig. 2—Side Elevation of Tank

fastening it together with screws, using white lead in joints, and offsetting them in the manner shown in the accompanying sketch. A perspective view of the box with hangers is shown in Fig. 3.

To render wooden tanks water proof and to prevent warping they should be coated with tar,

an acid proof paint or black asphaltum varnish. A tank built in this manner is very serviceable and inexpensive to build.

If a larger or smaller tank is required, it can be built with any number of compartments. If only 8x10 films are to be handled the removable crossbars will not be required.

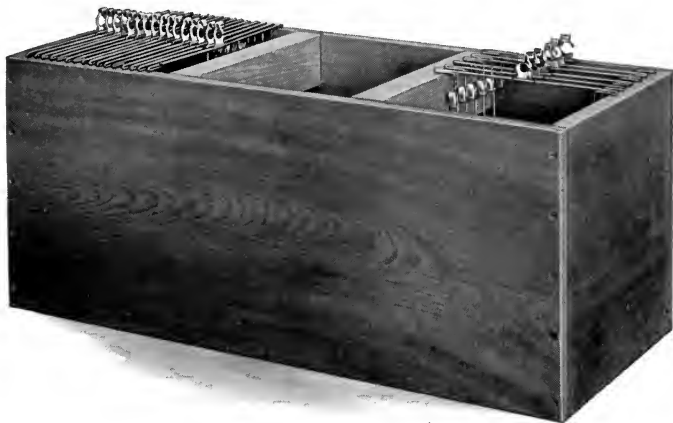


Fig. 3—The Finished Tank



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*From a Demonstrator's  
Negative*







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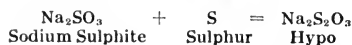
*From a Demonstrator's  
Negative*



## THE CHEMISTRY OF FIXATION

After development, the undeveloped silver bromide is removed by immersion of the negative or print in what is called the "fixing" bath. There are only a few substances which will dissolve silver bromide, and the one which is universally used in modern photography is sodium thiosulphate,  $\text{Na}_2\text{S}_2\text{O}_3$ , which is known to photographers as hyposulphite of soda, or more usually as hypo, though the name hyposulphite of soda is used by chemists for another substance.

*Thiosulphate of Soda or Hypo* can be made by boiling together sodium sulphite and sulphur, the sulphur combining with the sodium sulphite according to the equation:



In practice it is generally made from calcium sulphite residues, the calcium thiosulphite being then converted into the sodium salt by treatment with sodium sulphate. The hypo comes on the market in clear crystals and is usually fairly pure, any foreign substance present being more often due to accidental contamination than of a chemical nature and consisting of dirt, straw or wood dust due to careless handling. Sometimes, however, the hypo contains calcium thiosulphate, which decomposes much more readily than the sodium salt. On the whole, it is not difficult to obtain good hypo; the Eastman Tested Hypo is prepared in the form of granular crystals, easy to dissolve, and free from accidental contamination.

In the process of fixation the

silver bromide is dissolved in the hypo by combining with it to form a sodium silver thiosulphate. Two of these compound thiosulphates exist, one of them being almost insoluble in water, while the other is very soluble. As long as the fixing bath has any appreciable fixing power the soluble compound only is formed.

Fixing is accomplished by means of hypo only, but materials are usually transferred from the developer to the fixing bath with very little rinsing so that a good deal of developer is carried over into the fixing bath, and this soon oxidizes in the bath, turning it brown, and staining negatives or prints. In order to avoid this the bath has sulphite of soda added to it as a preservative against oxidation, and the preservative action is, of course, greater if the bath is kept in a slightly acid state. In order to prevent the gelatine from swelling and softening it is also usual to add some hardening agent to the fixing bath so that a fixing bath instead of containing only hypo will contain in addition sulphite, acid, and hardener.

If a few drops of acid such as sulphuric or hydrochloric acid are added to a weak solution of hypo, the hypo will be decomposed and the solution will become milky owing to the precipitation of sulphur. This is because the acid converts the sodium thiosulphate into the free thiosulphuric acid,

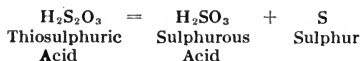


EASTMAN PORTRAIT FILM, ARTURA PRINT

*From a Demonstrator's  
Negative*



and this substance is quite unstable, decomposing into sulphurous acid and sulphur according to the equation:



The change of thiosulphate into sulphite and sulphur is reversible, since, if we boil together sulphite and sulphur we shall get thiosulphate formed, so that while acids free sulphur from the hypo, sulphite combines with the sulphur to form hypo again. Consequently, we can prevent acid decomposing the hypo if we have enough sulphite present, since the sulphite works in the opposite direction to the acid. An acid fixing bath therefore is preserved from decomposition by the sulphite, which also serves to prevent the oxidation of developer carried over into it. The developer which is carried over into the fixing bath is, however, alkaline and consequently a considerable amount of acid is required in a fixing bath which is used for any length of time. If only a small amount is present, it will soon be neutralized by the developer carried over. We are therefore in a difficult position because we require a large amount of acid present, and yet the fixing bath must not be strongly acid. The solution of the difficulty is found by taking advantage of the fact that there are some acids which

are very weak in their acidity and yet can neutralize alkali in the same way as a strong acid, so that a large amount of these acids can be added without making the bath so acid that sulphur is precipitated.

The strength of an acid depends upon the fact that when it is dissolved in water some of the hydrogen contained in it dissociates from the acid and remains in the solution in an active form, and the acidity of the solution depends upon the proportion of the hydrogen which is dissociated into this active form. The amount of alkali which the acid can neutralize, however, depends upon the total amount of the hydrogen present, and not on the dissociated portion only. The strongest acids are the mineral acids, such as sulphuric and hydrochloric, while the weakest acids are the organic acids, which are made from vegetable products, such as citric and acetic acids, which are very weak acids indeed.

Since in fixing baths what we require is a large amount of a weak acid, the best acid for the purpose is acetic acid. Citric or tartaric acid can also be used but not so satisfactorily.

*Acetic Acid* in its dilute form is prepared as vinegar by the fermentation of alcohol, the stronger acid being made from acetate of lime, which is prepared either by neutralizing vinegar with chalk or more usually by neutralizing with lime



EASTMAN PORTRAIT FILM, ARTURA PRINT

*From a Demonstrator's  
Negative*



the crude acetic acid prepared by the destructive distillation of wood. There are three commercial strengths of acetic acid: that known as glacial acetic acid, which contains about 99% of the acid, and which is called glacial because at moderately low temperatures it freezes to a solid, a solution containing 80% of the acid, and the 28% commercial acetic acid. It is not usual for acetic acid to contain any impurities which are likely to be harmful.

*Citric Acid* is obtained chiefly from lemons, the juice of the lemon being neutralized with chalk or lime, forming calcium citrate, from which the citric acid is prepared by decomposition with sulphuric acid. Citric acid is frequently adulterated and care should be taken that only pure crystals are used; a specially pure product is packed by the Eastman Kodak Company.

When acetic or citric acids cannot be obtained for the fixing bath, the only substitute which appears to be generally available is bisulphite. Bisulphite of soda,  $\text{NaHSO}_3$ , is intermediate between sulphite of soda and sulphurous acid, and is therefore equal in acidity to a mixture of equal proportions of these two substances. It makes a satisfactory acid fixing bath but does not give quite so good a reserve of available acid in the bath as acetic acid does. This is of importance particularly in connection with the hardening agent used in the fixing bath.

The commonest hardening agent is potash alum, the alum having the property of shrinking and tanning gelatine.

*Alum* is a compound sulphate of sodium, potassium or ammonium and aluminum. If the hydrogen in sulphuric acid be replaced by potassium, we get potassium sulphate,  $\text{K}_2\text{SO}_4$ , while if it be replaced by aluminum, we get aluminum sulphate,  $\text{Al}_2(\text{SO}_4)_3$ . The aluminum sulphate combines with other sulphates to form the alums, of which the commonest are potassium alum and ammonium alum. Sodium alum does not crystallize well, but the potassium and ammonium salts crystallize in large, clean crystals and are convenient in use. Ammonia alum has the disadvantage that if it becomes alkaline, ammonia may be liberated, which, of course, cannot happen with potash alum, but as potassium salts are difficult to obtain, ammonia alum has generally taken the place of potassium alum. Alum is among the substances specially included in the list of Eastman Tested Chemicals, since its purity is of considerable importance for its photographic use.

*Chrome Alum*, which is often used in the place of ordinary alum, does not contain any aluminum in spite of its name. It is a compound sulphate of potassium sulphate or ammonium sulphate with chromium sulphate, of which the formula is  $\text{Cr}_2(\text{SO}_4)_3$ , the chromium taking the place of the aluminum present in aluminum sulphate. Chrome alum is prepared commercially in large quantities and of a high degree of purity. It occurs in violet crystals soluble in water, its solution in cold water being violet but going green on heating, owing to the change in the composition of the salt. Chrome alum has greater hardening power than ordinary alum and is often used in place of it for fixing baths, its only disadvantage being its greenish color, which makes the fixing bath look somewhat dark. Chrome alum crystals lose water on keeping,

thus increasing in strength weight for weight.

When acetic acid cannot be obtained and the fixing bath is made up with bisulphite it is necessary to substitute chrome alum for ordinary alum. The reason for this is that when a solution of aluminum alum containing sulphite loses its acidity, as it may in a fixing bath, due to the carrying over of the developer, basic aluminum sulphite is precipitated, and this makes the solution muddy, so that if a fixing bath is made with ordinary alum and bisulphite, it will show a precipitate after a time which looks like sulphur, but which is really this basic sulphite of aluminum. Chromium does not form the corresponding compound very easily, so that by using chrome alum with bisulphite a fixing bath is obtained which can take the place of the acetic acid fixing bath with good results.

*Formalin* is a solution of formaldehyde, a gas having a very strong odor. The commercial solution contains 40% of formaldehyde and has the property of hardening gelatine very powerfully, a 5% solution rendering the gelatine of a film completely insoluble in boiling water in less than a minute. Formalin is, however, somewhat unpleasant to use and there is considerable danger of producing reticulation with it, so that it is only employed when extreme hardening is required and chrome alum does not harden the film sufficiently.

It is important not to overwork a fixing bath, because as

the fixing bath becomes saturated with silver the film or paper will carry this silver into the wash water with it and if not properly washed the silver salt will remain in the finished photograph and will decompose into silver sulphide in time, producing stains. A gallon of the standard strength fixing bath will fix a gross of 8x10 prints, and when these have been fixed a fresh bath should be used.



*With*  
*Portrait Film*

difficult lightings become so simple that you are given the incentive to create new effects—to give full play to your originality.

It is such work that marks your progress—that gives you prestige.

## Your Children's Portraits

The fleeting charm  
of childhood,  
caught by the lens  
and held in the  
photograph:



## THE PYRO STUDIO

Line cut No. 262. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.



# Price List

## EASTMAN PORTRAIT FILM

Size	Price per doz.	Size	Price per doz.
4¼ x 6½ . . . . .	\$ .90	8 x 10 . . . . .	\$2.40
4¾ x 6½ . . . . .	1.00	7 x 17 . . . . .	4.20
5 x 7 . . . . .	1.10	10 x 12 . . . . .	4.20
6½ x 8½ . . . . .	1.65	11 x 14 . . . . .	6.00
7 x 11 . . . . .	2.40	12 x 20 . . . . .	10.15

## EASTMAN FILM HOLDERS

Similar to plate holders in construction and use, and may be used interchangeably with plate holders.

No. 1 Holders fit Century Cameras, Century Studio Reversible Adapter Backs, Eastman View Cameras and the 5 x 7 Premo Hand Cameras, also 5 x 7 and 8 x 10 R. O. C. View Cameras.

For films	Price	For films	Price
4¾ x 6½ . . . . .	\$2.20	7 x 11 . . . . .	\$2.75
5 x 7 . . . . .	2.40	8 x 10 . . . . .	2.75
6½ x 8½ . . . . .	2.55		

No. 2 Holders fit the Universal, Empire State and Premo View Cameras.

For films	Price	For films	Price
5 x 7 . . . . .	\$2.40	8 x 10 . . . . .	\$2.75
6½ x 8½ . . . . .	2.55	11 x 14 . . . . .	6.85

No. 3 Holder fits the Eastman Home Portrait Camera, 5 x 7 size only.

Price . . . . .	\$2.40
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No. 4 Holder fits the 6½ x 8½ Premo Hand Camera and the 6½ x 8½ R. O. C. View Camera.

Price . . . . .	\$2.55
-----------------	--------

## EASTMAN PORTRAIT FILM KITS

A means of adapting View Plate Holders to the use of film. The film is laid into the holder and the kit inserted, as is a plate, to hold the film in position, the kits having the form of rectangular frames. Ground glass must be reversed when kits are used.

For films	Price	For films	Price
4¼ x 6½ . . . . .	\$ .20	8 x 10 . . . . .	\$ .30
4¾ x 6½ . . . . .	.20	7 x 11 . . . . .	.30
5 x 7 . . . . .	.20	10 x 12 . . . . .	.60
6½ x 8½ . . . . .	.30		

## EASTMAN FILM SHEATHS

A sort of open-faced envelope, made of aluminum. The film is slid into the sheath from one end and the turned edges keep the film in position. The sheath with the film may then be treated as a plate for purposes of loading.

No. 1 Film Sheaths are for use with Curtain Slide Holders, including Benster Holder.

For films	Price	For films	Price
4¼ x 6½ . . . . .	\$ .35	6½ x 8½ . . . . .	\$ .55
4¾ x 6½ . . . . .	.35	8 x 10 . . . . .	.70
5 x 7 . . . . .	.35	10 x 12 . . . . .	.80

Special Sheath for Universal Curtain Slide Holder.

For films	Price	For films	Price	For films	Price
8 x 10 . . . . .	\$1.10	10 x 12 . . . . .	\$2.20	11 x 14 . . . . .	\$2.20

Specify when Sheath is wanted for Universal Curtain Slide Holder.

No. 2 Film Sheaths are for use with Eastman View Plate Holders, as in Reversible Adapter Backs.

For films	Price	For films	Price
4¾ x 6½ . . . . .	\$ .30	6½ x 8½ . . . . .	\$ .30
5 x 7 . . . . .	.30	8 x 10 . . . . .	.35

## STERLING FILM HOLDERS

To fit the F. & S. Home Portrait Camera, F. & S. Sky Scraper Camera, F. & S. Commercial Camera or any other Camera taking 8 x 10 or 11 x 14 Sterling Holders.

For films	Price	For films	Price
8 x 10 . . . . .	\$5.05	11 x 14 . . . . .	\$11.00

## BANQUET FILM HOLDERS

Interchangeable with Banquet Plate Holders.

For films	Price	For films	Price
7 x 17 . . . . .	\$13.70	12 x 20 . . . . .	\$20.60

## GRAPHIC FILM HOLDERS

Interchangeable with Graphic Plate Holders.

For films	Price	For films	Price	For films	Price
5 x 7 . . . . .	\$2.75	6½ x 8½ . . . . .	\$3.45	8 x 10 . . . . .	\$3.75

## GRAFLEX FILM HOLDERS

Interchangeable with 5 x 7 Graflex Plate Holders.

For films	Price
5 x 7 . . . . .	\$5.50

5 x 7 Graflex Magazine Plate Holders will take film by placing cardboard in septum, back of film.

## EASTMAN FILM DEVELOPING BOXES

No. 2, for six 5 x 7 Film Developing Hangers . . . . .	\$5.70
No. 3, for twelve 5x7 or eight 8x10 Film Developing Hangers . . . . .	8.55
No. 3A, for six 8 x 10 Film Developing Hangers . . . . .	7.15
No. 4, for twelve 5x7 or eight 7x11 Film Developing Hangers . . . . .	8.55

## EASTMAN FLOATING LIDS FOR FILM DEVELOPING BOXES

Size	Price	Size	Price	Size	Price
5 x 7 (No. 2)	\$ .60	8 x 10 (No. 3)	\$ .90	7 x 11 (No. 4)	\$ .90

## EASTMAN FILM LOADING FIXTURE No. 2

A device, practically automatic, for loading films into the developing hangers.

For films	Price	For films	Price
4¼ x 6½ . . . . .	\$1.75	8 x 10 . . . . .	\$2.05
5 x 7 . . . . .	1.75	7 x 11 . . . . .	2.05
6½ x 8½ . . . . .	2.05		

## EASTMAN FILM DEVELOPING HANGERS No. 2

A rectangular frame of non-corroding metal, with a cross-bar of suitable length for suspending the film in the developing box proper to the size of film being developed. The film is caught by a clip at each corner, thus being held firmly in a perpendicular position.

For films	Price	For films	Price
4¾ x 6½ . . . . .	\$ .60	6 x 11 . . . . .	\$ .75
5 x 7 . . . . .	.60	7 x 11 . . . . .	.75
6½ x 8½ . . . . .	.75	10 x 12 . . . . .	1.45
8 x 10 . . . . .	.75	11 x 14 . . . . .	1.80

The Special Hangers for X-Ray Films are also usable with Portrait Film, except 4¾ x 6½, but it must be remembered that the X-Ray Film Developing Hangers all have 16" cross-bar.

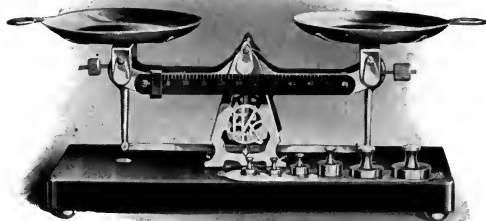
## EASTMAN STEEL FILING CABINETS

	Price
No. 1, capacity 500—8 x 10 Film Negatives . . . . .	\$14.20
No. 2, capacity 1000—4¾ x 6½ or 5 x 7 Film Negatives . . . . .	16.35
No. 3, two compartments, capacity 500—4¾ x 6½ or 5 x 7 and 250—8 x 10 Film Negatives . . . . .	18.50

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It saves time—insures  
absolute accuracy



## The Eastman Scale

Specially designed for the convenience of the professional photographer.

There are no small, loose weights—just a sliding weight on a beam and the larger weights for ounces and fractions of ounces, avoirdupois. All bearings are of hardened steel; the beam is black with white markings; all other parts are nicked.

### THE PRICE

Eastman Scale . . . . . \$6.00

Canadian Kodak Co., Limited,

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*The war put military discipline into photography. Fixed temperature of solutions and fixed time of development were required in war photography to insure uniform results.*

## THE EASTMAN THERMOMETER

Indispensable in tank development where time and temperature are the governing factors. Accurate, convenient.

Eastman Thermometer . \$ .75

## THE EASTMAN TIMER

A split-second timer, with large dial, plainly marked and easily read. Prints may be timed with the accuracy and uniformity necessary for good results. Runs 30 hours without re-winding.



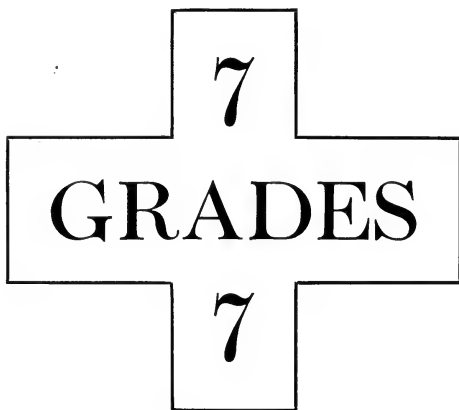
The Eastman Timer . . . . \$4.00

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Uniform and Reliable  
For Enlarging and Contact Printing



- No. 2. Heavy, smooth; suitable for large prints.
- No. 3. Heavy, rough paper for crayon or air brush work.
- No. 4. Glossy paper, for prints requiring a very high gloss finish.
- No. 5. Matte surface, suitable for contact or enlarged prints.  
Surface well suited to crayon or air-brush work.
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## DOUBLE WEIGHT

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\$ .10	\$ .60	\$ 1.00	..... 1 $\frac{5}{8}$ x 2 $\frac{1}{2}$ .....	\$ .15	\$ .75	\$ 1.25
.10	.60	1.00	..... 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ .....	.15	.75	1.25
.10	.60	1.00	..... 2 $\frac{1}{2}$ x 4 $\frac{1}{4}$ .....	.15	.75	1.25
.10	.60	1.00	..... 3 x 4.....	.15	.75	1.25
.15	.70	1.25	..... 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ .....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{1}{2}$ x 4 $\frac{1}{4}$ .....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{1}{2}$ x 4.....	.18	.90	1.55
.15	.70	1.25	..... 4 x 4.....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{1}{4}$ x 5 $\frac{1}{2}$ .....	.18	.90	1.55
.15	.70	1.25	..... 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	.18	.90	1.55
.20	.95	1.75	..... 3 $\frac{1}{4}$ x 6.....	.25	1.20	2.20
.20	.95	1.75	..... 4 x 5.....	.25	1.20	2.20
.20	.95	1.75	..... 3 $\frac{7}{8}$ x 5 $\frac{1}{2}$ Cabinet ...	.25	1.20	2.20
.20	.95	1.75	..... 3 $\frac{7}{8}$ x 5 $\frac{7}{8}$ .....	.25	1.20	2.20
.20	.95	1.75	..... 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ .....	.25	1.20	2.20
.20	.95	1.75	..... 4 x 6.....	.25	1.20	2.20
.25	1.50	2.35	..... 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ .....	.30	1.85	3.00
.30	1.60	2.60	..... 4 $\frac{3}{4}$ x 6 $\frac{1}{2}$ .....	.40	2.05	3.25
.30	1.80	3.00	..... 5 x 7.....	.40	2.30	3.75
.35	1.90	3.10	..... 5 x 7 $\frac{1}{2}$ .....	.45	2.35	3.95
.35	2.00	3.35	..... 5 x 8.....	.45	2.50	4.25
.40	2.10	3.60	..... 3 $\frac{1}{2}$ x 12.....	.50	2.65	4.55
.40	2.20	3.75	..... 5 $\frac{1}{2}$ x 7 $\frac{3}{4}$ .....	.50	2.75	4.70
.45	2.50	4.35	..... 6 x 8.....	.55	3.10	5.50
.50	2.80	5.00	..... 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ .....	.60	3.55	6.25
.55	3.10	5.60	..... 7 x 9.....	.70	3.95	7.05
.65	3.60	6.55	..... 7 $\frac{1}{2}$ x 9 $\frac{1}{2}$ .....	.80	4.55	8.25
.70	4.00	7.50	..... 8 x 10.....	.90	5.10	9.35
1.00	5.90	11.25	..... 10 x 12.....	1.25	7.45	14.05
1.35	7.80	14.35	..... 11 x 14.....	1.70	9.80	18.00
1.50	9.00	16.85	..... 12 x 15.....	1.85	11.35	21.10
2.00	11.85	22.50	..... 14 x 17.....	2.50	14.85	28.10
2.75	15.60	30.00	..... 16 x 20.....	3.45	19.55	37.50
2.85	16.55	31.85	..... 17 x 20.....	3.60	20.75	39.85
3.35	20.00	38.75	..... 18 x 22.....	4.25	25.00	48.45
4.00	23.75	46.25	..... 20 x 24.....	5.00	29.70	57.80

Special cut sizes furnished at proportionate prices on orders of a dozen or more amounting to \$1.00 list or more.

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\$ 1.70	..... 10 feet x 20 inches .....	\$ 2.10
3.40	..... 10 feet x 40 inches .....	4.25
5.00	..... 10 yds. x 20 inches .....	6.25
10.00	..... 10 yds. x 40 inches .....	12.50

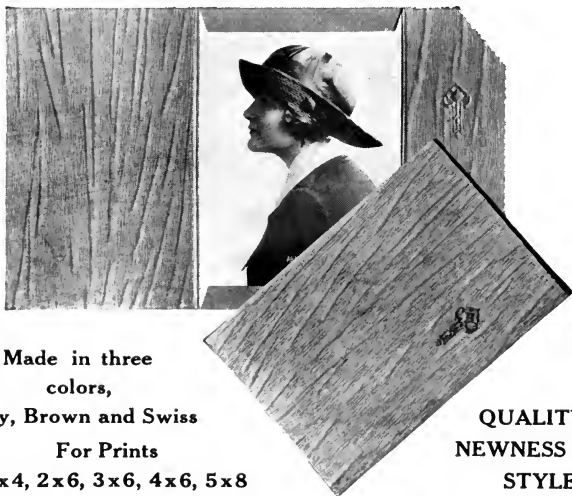
Any width up to 40 inches, other than the above, furnished in rolls not less than 10 yards in length.

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Per Doz.	2 Doz.	$\frac{1}{2}$ Gross	Gross	500
\$ .20	\$ .35	\$ .95	\$1.70	\$4.40

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Made in three  
colors,  
Grey, Brown and Swiss  
For Prints  
3x4, 2x6, 3x6, 4x6, 5x8

QUALITY,  
NEWNESS AND  
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The Rosetta, a new style art proof folder made of best rag stock with rich silk grain finish. Edge of small flap serrated and neat crest brought up in color. A very attractive folder in three colors, suitable for all tones of prints. Be sure and see samples of this new style.

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# ARTURA CARBON BLACK

Gets more out of your negative  
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FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton*  
*New York, N. Y.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

MAY 1919

No. 3

## FILM EXPERIENCE

The sales of Portrait Film in the U. S. for the first three months of 1919 were  $2\frac{1}{2}$  times as great as for the corresponding period in 1918.

Naturally this is very gratifying to us. But it means something to you as well.

To us it means that the product which has taken twenty years to perfect has become firmly established as a standard photographic material in less than five years.

The fact that it was a perfected material—a product on which all of the experimenting had been done in our factory at our expense, has had much to do with its success.

We felt our way, even after it had been placed on the market. We knew how good it was, but we wanted practical, unbiased demonstrations of its worth from those who used it. We wanted fair criticism and unsolicited praise.

We got both, but there was always more praise than criticism. Even in those first months, there would be some minor criticism as to packing or handling or developing, but the criticism was always softened by praise of Film quality. "We think the Film Kits for loading Film in holders might be improved upon, but Film quality is great. We made 48 exposures the other day under conditions of light that would have meant failure with plates. We didn't lose a Film. We wouldn't think of giving them up."

That was the way they felt about Film five years ago. Since that time Film apparatus has been greatly simplified—Film is much easier and more convenient to use than plates.

And this is what a successful firm of Northwestern photographers write their dealer to-day: "We have used these Portrait Films for our home portrait, as

well as all work done outside the studio, for something like two years past, consequently, *we know, by practical experience, the excellent quality of Film.*

"But not until last fall did we decide to change from dry plates to Portrait Film for all our studio work. After the busiest fall and winter we ever saw, can say we never got through with such a large amount of work so easily or satisfactorily before. The dark-room work is much simplified and the retouching is not half as much as on the ordinary dry plate.

"We consider these films the coming thing—in fact, in our opinion, the time will come when dry plates will be practically as obsolete as wet plates are now.

*"Our only regret is that we did not take them up sooner."*

Where there is a lot of smoke you may be sure there is also fire. Photographers are finding the fire. They are learning that back of our advertising and the advertising satisfied Film users are voluntarily giving Film there is something more than mere convenience—a fundamental quality that can't be denied, that is always there when needed, that saves the difficult situation and makes the open minded photographer a Film enthusiast.

The more difficult the lighting, the more apparent the advantages of Portrait Film. If

you had no more difficult driving than level city streets—no hills to climb—no bad roads—a low-powered car would answer your purpose. But if you tire of this—if you want variety and drive into the country for a change, over strange roads, up and down hill, never knowing what is ahead—then you must have the car with an engine that has reserve power. If there was no special difference in price or upkeep, you would certainly buy the latter.

You have been working for years under certain restrictions—ironing the bumps out of the road for plates because they couldn't make the grades—but with Film you can be progressive and do the things that are different.

Another prominent photographer of the Northwest says: "When these Films were first brought out I felt sure they were the coming thing, but like so many photographers, I hesitated about putting them in exclusively for my work, and the holidays, just past, are the first that I have used the film exclusively. I am free to say that I have found them a great improvement over the old plate."

"I think, without any question, when photographers get to using them they can not see anything else."

What others say of film means much to you, for it is the ex-



FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton*  
*New York, N. Y.*



perience of those who have demonstrated their progressiveness and are willing to pass their experience along.

In nearly every case Film has first been adopted by the photographer for the most difficult work he is called upon to do—home portraiture and other forms of work outside the studio *where he is unable to create conditions favorable to plates*. Film invariably proves its superiority under these difficult conditions.

It is then the photographer sees that Film will enable him to give variety and freshness to his studio work. He tries it—does the thing that is spectacular—breaks all professional precedents—shoots across the light, and even into it, and gets results.

Film has many physical advantages—lightness, flexibility, convenience in handling, but in nearly every case the photographer has become a Film enthusiast because of Film quality—the wonderful Film results obtained under the most difficult conditions.



## THE NATIONAL CONVENTION

Attend the National Convention this year. The date, July 28th to August 2nd. The place, Cedar Point on Lake Erie, midway between Toledo and Cleveland.

## FILM EQUIPMENT

Since the introduction of Eastman Portrait Film in this country, a good many Canadian photographers have been able to confirm, by personal experience, what they have read and have heard about film superiority. In no case has any photographer passed an unfavorable opinion, but, of course, the equipment for using film, necessarily, differs from what has been used for plates.

Now, admittedly, Kits and Sheaths, for adapting View Plate Holders to film use, are but makeshift arrangements and cannot very well afford the same facility as would film holders.

The superiority of film results over plate results, and the many physical advantages offered—*e. g.* minimum of bulk and weight—would seem to point out, as the best course, the use of film holders.

No. 1 Holders fit Century View Cameras, Century Studio Reversible Adapter Backs, Eastman View Cameras and the 5x7 Premo Hand Camera, also 5x7 and 8x10 R. O. C. View Cameras.

For Films	Price
4 $\frac{3}{4}$ x 6 $\frac{1}{2}$ . . . .	\$2.20
5 x 7 . . . .	2.40
6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ . . . .	2.55
7 x 11 . . . .	2.75
8 x 10 . . . .	2.75





FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton*  
*New York, N. Y.*



## GOOD NEWS

The old reliable is back on the market again—ELON. After an enforced absence for months, on account of war conditions, this, the best of developing agents for paper, once more is available to our customers.

ELON is the trade name under which we market the Sulphate of Monomethyl Paramidophenol, and this is identical in formula with ———, a German developing agent, which Fritz worked into being a household word, so to speak, in the photographic trade, all over the world. ELON, however, was universally conceded to be the superior of German ———. The German ——— was never half as successfully opposed by any other material as by ELON, which is not tainted by anything German about it. ELON is not now made in Germany, and never was. The Armistice marked an easing off in the heavy demands on the production of this chemical for Military and Naval Photography and we seized the first opportunity to restore the old favorite.

ELON in combination with Hydrochinon is prescribed in the formulæ for our photographic products and the post-war ELON is fully worthy of its pre-war reputation for quality. Our customers can make no mistake in resuming the use of the tried and proven true—ELON—for we,

who make the sensitized material with which its use is urged, know and assure you that nothing else can give the same uniform satisfaction. Readers of STUDIO LIGHT will realize without much casting up of figures, that if there were no alternative for ELON, the maximum volume of business could not possibly be comparable with our business in sensitized goods and we need hardly labor the point that ELON is recommended and specified to protect our trade in papers, plates and films.

In fairness to all we shall, for the time being, supply ELON in 1 oz. and 4 oz. bottles only—orders for excessive quantities cannot be filled.

### PRICE

1 oz. bottle . . .	\$2.10
¼ lb. bottle . . .	8.00



*THE old fear of working into or against the light no longer troubles the photographer who is experienced in the handling of Portrait Film. It is in the making of difficult lightings that Portrait Film immediately demonstrates its superiority over glass plates. And it is the man who does out-of-the-ordinary work who makes real progress.*





FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton  
New York, N. Y.*



# MRS. EMMA HILTON

*Photographer  
of  
Children*



The work of a specialist is always interesting, for we expect to find in it something in the way of suggestion that will be useful to those of us who do not specialize. We can't, all of us, be specialists in photography. Our field is limited, or we have generalized for so long that we hesitate to give up any part of a business that has become established.

Those photographers who have become specialists after a long term of general business have, as a rule, drifted into a special line of work because they liked it and could do that one thing well enough to capitalize their special ability.

The greater part of our readers know of the success of Mr. E. B. Core, New York's photographer of children. And since he has retired from business, many have wondered upon whose shoulders his mantle would fall.

Some years ago a natural artistic taste and a dislike for idleness led Mrs. Emma Hilton to seek a position with Mr. Core, and upon his retirement in 1914 Mrs. Hilton opened a studio of her own on upper Broadway, photographing children exclusively. Of course, her pictures often included mothers and fathers, but only as accessories.

She has been very successful in her work, so successful in fact, that she has found it to her advantage to move her studio to





*By Mrs. Emma Hilton*

*New York, N. Y.*

Fifth Avenue, where one naturally expects to find the specialist and where the New Yorker prefers to shop.

Why has she been successful—why is any specialist successful? Study our reproductions of her work. If you have children of your own you will see at once. If you have not, ask any mother or father why these pictures have a special appeal. The subjects are not self-conscious, they are natural, happy children caught in pleasing and characteristic attitudes. Their expressions are not forced. There is a spon-

taneity of action that can only be secured by one who knows children—one in whom children have confidence.

It sounds easy—so easy that those who are not successful may blame their subjects rather than themselves. There are difficult, willful children in all walks of life—possibly more among the rich than the merely well-to-do. But all children can be photographed successfully by one who has patience, tact and that inborn love for children that no one recognizes more quickly than the child.

Once they have confidence they pose themselves, unless the picture is to be somewhat formal, and then they can be led to pose as you wish. Study the psychology of the child mind as Mrs. Hilton has studied it. Combine what you learn with an honest effort to win the confidence of children, and this with a fair knowledge of photography. These are the essentials—the things you must do to be a successful photographer of children.

If you really enjoy the work you have a fair assurance of success. It must be fun for you before you can make it fun for the children. You can't fool them. If you make it real play—play for both—then you win, just as Mrs. Hilton has won. It's a real game and it's worth learning.



*Film is invariably adopted because of Film quality—because it does the thing that can't be done successfully with plates.*

*But while it does the difficult thing best, it also does the ordinary thing better.*



## A HUMAN APPEAL

*Dear Fellow Photographer:*

The letter which follows has just been received:

CHAMBRE SYNDICALE FRANCAISE  
DE LA PHOTOGRAPHIE.

Paris, France,

7 February, 1919.

*Dear Mr. MacDonald:*

The great war in which America joined us in the defence of civilization has ended by the victory of righteousness. But a great many members of our profession of the North and East of France, occupied by the enemy, have been ruined, their photographic implements taken off, and their houses destroyed.

In a general meeting our "Chambre Syndicale" decided, on the 9th of last January, to help our unfortunate fellow-photographers and to start a subscription with the object of collecting money to this end.

May I trouble you in consideration of your well known charitable feelings and request you to promote, if possible among our American fellow-photographers, a subscription, the proceeds of which would be a great assistance to our work.

Please accept my best wishes for all that you will be able to do,

With the hope we shall soon meet again in Paris, believe me,

Yours faithfully,

L. VALLOIS,

Pres.

The majority of these men have been serving with the French army—only to find that everything that they left at home is wiped out—no studio, no apparatus, and frequently no family—nothing with which to resume life.



FROM ARTURA IRIS PRINTS

*By Mrs. Emma Hilton  
New York, N. Y.*



If we Americans don't help them there is no one who will—for there is no one else who can. British, Italians and French are equally impoverished, while we American photographers have made more money than ever before. Give something real, not just a little loose change as you would to a beggar, but generously, as you would to a good old pal who had been hit—and hit hard.

I know the men at the head of the society, they are careful, conservative, and level-headed.

I will start the fund with five hundred dollars—you can send your checks to me—made out to me, and I will forward the whole sum by American Express, and publish the list.

This is the first, and last and only call. It is too worthy a cause to be begged for.

Cordially yours,

PIRIE MACDONALD,  
576 Fifth Avenue,  
New York.



## ELON

(Monomethyl Paramidophenol  
Sulphate)

*It's one of the Tested Chemicals—we recommend it—  
we know it's right.*

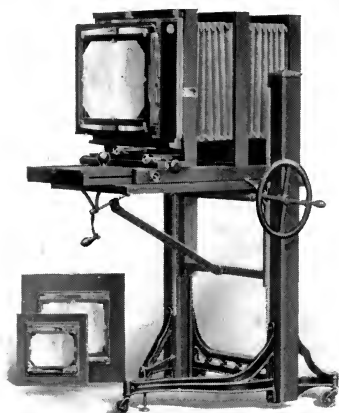
## A PAYING INVESTMENT

Photography has been fortunate—the war has established it with greater firmness and greater favor in the public mind, so it cannot be said that reconstruction applies to photography in the same sense as to many other kinds of business. The period of reconstruction does, however, offer the photographer the opportunity for greater progress.

Business has been good—it has also been profitable, and now is the time to invest a portion of that profit in the equipment that is needed to give your studio tone—equipment that will increase efficiency and create the favorable impressions necessary to maintain your well earned prestige.

Charge off worn out or make-shift apparatus to profit and loss and invest in the things your business needs to modernize it. A new outfit is not an expense—it's an investment and if it's a good outfit it's a good investment. Read the following descriptions, choose the outfit that best fits your needs and send an enquiry to your dealer to-day.

Century Studio Outfits No. 7 and No. 8 have become the standard equipment of photographers requiring the convenience of double Portrait Film or Plate Holders; means for quickly making two exposures on a film or



No. 8 Studio Outfit

plate; rapidity and smoothness in operation combined with unusual attractiveness in design and finish. The No. 7 and No. 8 Studio Outfits are alike in design and general appearance, the difference being in the heavier construction of the No. 8 Outfit because of its larger size.

The No. 8 Century Studio Outfit includes an 11 x 14 Studio Camera; one 11 x 14 Sliding Ground Glass Carriage, with double Portrait Film or Plate Holder; one 8 x 10 and one 5 x 7 Reversible Adapter Back, each back supplied with one double Portrait Film or Plate Holder; one No. 2 Semi-Centennial Stand.

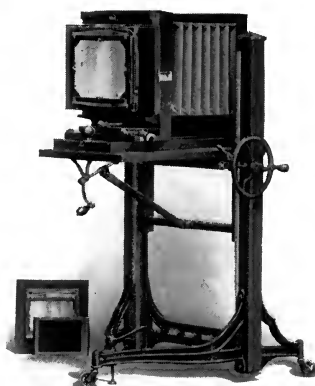
The No. 7 Century Studio Outfit consists of an 8 x 10 Studio Camera; one 8 x 10 Sliding Ground Glass Carriage; one 5 x 7 Reversible Adapter Back; one

8 x 10 and one 5 x 7 Eastman Double Portrait Film or Plate Holder; one No. 1 Semi-Centennial Stand.

(These outfits are standard stock for the stock houses, but others will read this, so act promptly to avoid delay.)

Century Studio Cameras are thoroughly well made of heavy selected mahogany and cherry, handsomely finished in the natural wood. All metal parts are polished brass. The bellows are of heavy wear resisting material and of a color that harmonizes with the body of the camera.

The focusing back of these cameras rests upon small V shaped metal rollers which travel in V grooves in the heavy camera bed. This arrangement permits quick and smooth movement of the camera-back into position where it is locked with a large draw knob. Focusing is then



No. 7 Studio Outfit



FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton  
New York, N. Y.*







FROM AN ARTURA IRIS PRINT

*By Mrs. Emma Hilton  
New York, N. Y.*



completed by turning focusing knob on either the right or left hand side of the camera.

The vertical and horizontal swings are quickly adjusted by worm screw and sector devices, conveniently located—in fact all adjustments may be made by the operator from a position behind the camera.



Sliding Ground Glass Carriage

The sliding ground glass carriage is held firmly in position by a simple spring catch. This attachment permits the operator to make negatives full size, or to quickly slide the focusing-back to the right or left of center when making two exposures on a film or plate.

The Reversible Adapter Backs have spring actuated ground glass screens and take Double Portrait Film or Plate Holders. They snap into either vertical or horizontal position on the sliding carriage. The Reversible Adapter Backs are made in three

sizes—11 x 14, 8 x 10 and 5 x 7. Therefore, three different sizes of film or plates may be used with the No. 8 Camera, or two sizes with the No. 7 Camera.

Metal wing diaphragms fitting the back frame of the sliding carriage are used when making two 7 x 11 negatives with the 11 x 14 back, two 5 x 8 negatives with the 8 x 10 back, or two 3½ x 5 negatives with the 5 x 7 back.

The Semi-Centennial Stand is well known for its ease and simplicity of operation as well as the extreme range of elevation provided. With the Studio Camera in position, the spring actuated elevating device is counterbalanced. When the lock is released, the platform can be lowered to within 14 inches of the floor or raised to a height of 49 inches, and again quickly locked in position. The back of the stand platform is raised or lowered by turning a conveniently located handle. A triangular metal base is provided with rubber tired casters enabling the operator to easily and noiselessly move the entire outfit about the floor and lock it in position with a slight pressure of the foot upon the stand jack. The stand is sturdily built

# ELON

*Your dealer has it in stock.*



*By Mrs. Emma Hilton*

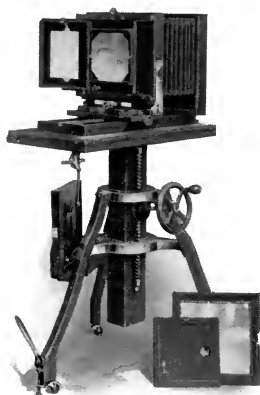
*New York, N. Y.*

throughout and, with the exception of the metal base, is finished in mahogany to harmonize with the camera.

The Century Studio Outfit No. 4 is especially designed to meet the demand for light, compact, sturdily built apparatus at moderate cost. The camera is made of mahogany and cherry, attractively finished in the natural wood. All of the working parts are similar to those provided with the No. 7 and No. 8 Outfits. Full size negatives

are made by focusing upon the 8 x 10 Ground Glass Screen, which is then replaced by the Curtain Slide Holder. The cabinet attachment is not automatic. The regular 5 x 7 Curtain Slide Holder is carried at one end of the attachment, and a Ground Glass Screen at the other. The operator slides the carriage first, bringing the focusing screen into position. With this attachment two exposures can be made on a 5 x 7 plate in horizontal position.

The No. 4 Century Studio



No. 4 Studio Outfit

Stand is substantially constructed of hard wood, mahogany stained and finished. The platform is raised or lowered by a self-locking device. The Stand rests upon three rubber tired casters, and may be quickly locked in position with the Century Jack.

The Century Studio Outfit No. 4 includes the 8 x 10 Studio Camera; one 8 x 10 light weight Curtain Slide Holder; one 8 x 10 detachable Ground Glass Focusing Screen; one 5 x 7 Cabinet Attachment; one 5 x 7 Curtain Slide Holder, and No. 4 Century Stand and Holder Rack.

(Your stock house will gladly quote you detailed prices on the apparatus dealt with above.)

A Reversible Adapter Back similar to that provided with the No. 7 and No. 8 Outfits, accommodating 8 x 10 double Portrait Film or Plate Holders, may be

fitted to the back of the No. 4 Studio Camera by means of a special Adapter Frame fitted to the back of the camera. This attachment will also accept extra Adapter Backs permitting the use of smaller sizes of Portrait Film or Plates.



## WHY PEOPLE NEED PHOTOGRAPHS

The Director of Sales of a large western concern writes us as follows of his difficulty in obtaining photographs of prospective salesmen:

"We are located away out here in Los Angeles and most of our activities are east of the Rocky Mountains. This necessitates our getting in touch with salesmen whom we have never had the opportunity of meeting personally, and in every instance we ask the man to send us a recent photograph of himself.

"I wish you could see the apologies that come in every day stating that 'it has been some time since I have had a photograph taken,' and it has been absolutely impossible in the hundreds of applications that have been sent to me to get one salesman to acknowledge that he had on hand a recent photograph of himself. These men range in age from twenty-one to sixty-five years.

"It seems to the writer an unusual condition and also looks like a splendid opportunity for the photographer to get busy along real commercial enterprising lines and see that the people in his town are photographed more often."

There is food for thought in what this business man says. Photography should have more advertising. Men, especially, should be photographed more often. Young men who are just entering a business life should have photographs of themselves—older men who wish to better their positions should have photographs, and the women and children could be photographed more often than they are.

Advertising is the means of bringing these things about. Not advertising that merely states the fact that you make photographs but advertising that tells people why they should be photographed. Make every advertisement you write suggest some reason for being photographed.

"You are leaving school—seeking a position in the business world. Your future employer will most likely require that you mail your photograph with your application.

Have that photograph made to-day.

The Pyro Studio,  
160 Main Street."

"Graduation day is not far away. Plan an exchange of photographs with all your classmates—keep the class of '19' together—a picture history for years to come."

"The Pyro Studio will submit special styles and prices to your Class Representative."

Here are only two suggestions, others will readily come to your mind. More people should be photographed. Tell them why—then tell them you are the photographer.



## DRY MOUNTING

Aside from making work of good quality, it is essential that the work you deliver should hold up—should retain its good appearance longer than the time necessary for it to reach your customer or your customer's friends.

The old-fashioned, solid mounting on heavy cards is a thing of the past. Mount manufacturers have done wonders in making mounts and folders that really improve the appearance of your work, but all too often a print curls up, a corner breaks loose or slips out of its enclosure and your good work is cheapened.

You can prevent this sort of thing—and it is worth preventing. Dry mounting is the solution of the problem and dry

mounting is simple and effective.

You can dry mount a print to the thinnest card. It won't cockle or curl it. You can dry mount a print to a sheet of paper merely to keep the print flat in a folder or slip in mount. It will stay flat. You can dry mount enlargements to thin mounts for framing, for folders or for delivery as sheet prints. You can tack prints at the corners or at top and bottom. In fact, you can do anything with a Dry-Mounting Press and Dry Mounting Tissue that you can do with paste or glue and do it more neatly and better. And you can do many things you can't do with paste or glue.

If you have never seen a Dry Mounting Press in operation, make it a point to see one the next time you visit your professional dealer; practically all dealers use these machines and can explain their operation.

The thin adhesive tissue is furnished in cut sizes in dozens and gross packages and in rolls five yards by twenty inches. It is not expensive. Cabinet size is 70 cents per gross, other sizes in proportion—rolls are \$1.10.

The dry mounting principle is simple. The tissue melts when hot and sets instantly when the heat is removed. A tacking iron is used to attach tissue to the print. This is a small tool that can be heated in a gas flame. An electrically heated tool is

also furnished. Lay the tissue on the back of the print and touch in several places with the hot tacking iron. Trim the print with tissue attached, lay on the mount and slip the tacking iron under one corner to tack tissue to mount. Then place in the press, cover with a sheet of 10-ply cardboard and pull down on the lever that brings the hot platen of the press in contact with the cardboard. In a few seconds the print will be firmly stuck—will stay stuck.

Gas heated presses are made in 5 x 7 and 11 x 14 sizes. The electrically heated press is only made in the 11 x 14 size. The 11 x 14 press is most suitable, as several small prints may be mounted at once, or prints larger than the size of the press may be mounted by mounting one-half or one-quarter of the print at a time.

This is a day of progress—people want the better and more lasting things, and your prints will be worth more—will have more lasting quality if they are properly mounted.



## ELON

*Will give you better results.  
Your dealer has it in stock—  
the price is right.*



There's no period of life in which the changes are so rapid, the stages so interesting or the memory so well worth keeping as the period of childhood.

*Keep the record in photographs.  
Begin with a portrait to-day.*

## THE PYRO STUDIO

Line cut No. 263. Price, 50 cents.

### THE ONLY CONDITION

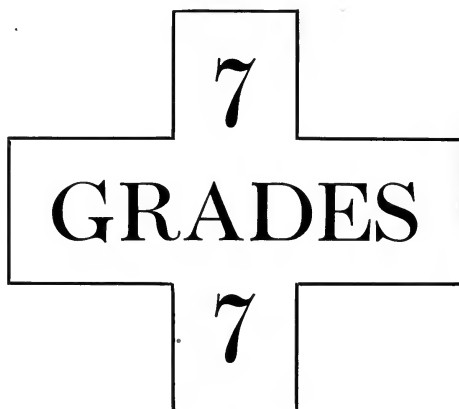
We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# P. M. C. BROMIDE PAPERS

Uniform and Reliable  
For Enlarging and Contact Printing



- No. 2. Heavy, smooth; suitable for large prints.
- No. 3. Heavy, rough paper for crayon or air brush work.
- No. 4. Glossy paper, for prints requiring a very high gloss finish.
- No. 5. Matte surface, suitable for contact or enlarged prints.  
Surface well suited to crayon or air-brush work.
- No. 6. Smooth Matte surface, double weight.
- No. 7. Rough surface, double weight.
- No. 8. BUFF—Double weight, medium rough surface.

*POST CARDS—Supplied in Matte and Glossy Surfaces.*

MANUFACTURED BY

Canadian Kodak Co., Limited,  
Toronto, Canada



## P. M. C. BROMIDE PAPER

## SINGLE WEIGHT

## DOUBLE WEIGHT

Dozen	$\frac{1}{2}$ Gro.	Gross	SIZE	Dozen	$\frac{1}{2}$ Gro.	Gross
\$ .10	\$ .60	\$ 1.00	..... 1 $\frac{5}{8}$ x 2 $\frac{1}{2}$ .....	\$ .15	\$ .75	\$ 1.25
.10	.60	1.00	..... 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ .....	.15	.75	1.25
.10	.60	1.00	..... 2 $\frac{1}{2}$ x 4 $\frac{1}{4}$ .....	.15	.75	1.25
.10	.60	1.00	..... 3 x 4 .....	.15	.75	1.25
.15	.70	1.25	..... 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ .....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{3}{8}$ x 4 .....	.18	.90	1.55
.15	.70	1.25	..... 4 x 4 .....	.18	.90	1.55
.15	.70	1.25	..... 3 $\frac{1}{4}$ x 5 $\frac{1}{2}$ .....	.18	.90	1.55
.15	.70	1.25	..... 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$ .....	.18	.90	1.55
.20	.95	1.75	..... 3 $\frac{1}{4}$ x 6 .....	.25	1.20	2.20
.20	.95	1.75	..... 4 x 5 .....	.25	1.20	2.20
.20	.95	1.75	..... 3 $\frac{7}{8}$ x 5 $\frac{1}{2}$ Cabinet ...	.25	1.20	2.20
.20	.95	1.75	..... 3 $\frac{7}{8}$ x 5 $\frac{7}{8}$ .....	.25	1.20	2.20
.20	.95	1.75	..... 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ .....	.25	1.20	2.20
.20	.95	1.75	..... 4 x 6 .....	.25	1.20	2.20
.25	1.50	2.35	..... 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ .....	.30	1.85	3.00
.30	1.60	2.60	..... 4 $\frac{3}{4}$ x 6 $\frac{1}{2}$ .....	.40	2.05	3.25
.30	1.80	3.00	..... 5 x 7 .....	.40	2.30	3.75
.35	1.90	3.10	..... 5 x 7 $\frac{1}{2}$ .....	.45	2.35	3.95
.35	2.00	3.35	..... 5 x 8 .....	.45	2.50	4.25
.40	2.10	3.60	..... 3 $\frac{1}{2}$ x 12 .....	.50	2.65	4.55
.40	2.20	3.75	..... 5 $\frac{1}{2}$ x 7 $\frac{3}{4}$ .....	.50	2.75	4.70
.45	2.50	4.35	..... 6 x 8 .....	.55	3.10	5.50
.50	2.80	5.00	..... 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ .....	.60	3.55	6.25
.55	3.10	5.60	..... 7 x 9 .....	.70	3.95	7.05
.65	3.60	6.55	..... 7 $\frac{1}{2}$ x 9 $\frac{1}{2}$ .....	.80	4.55	8.25
.70	4.00	7.50	..... 8 x 10 .....	.90	5.10	9.35
1.00	5.90	11.25	..... 10 x 12 .....	1.25	7.45	14.05
1.35	7.80	14.35	..... 11 x 14 .....	1.70	9.80	18.00
1.50	9.00	16.85	..... 12 x 15 .....	1.85	11.35	21.10
2.00	11.85	22.50	..... 14 x 17 .....	2.50	14.85	28.10
2.75	15.60	30.00	..... 16 x 20 .....	3.45	19.55	37.50
2.85	16.55	31.85	..... 17 x 20 .....	3.60	20.75	39.85
3.35	20.00	38.75	..... 18 x 22 .....	4.25	25.00	48.45
4.00	23.75	46.25	..... 20 x 24 .....	5.00	29.70	57.80

Special cut sizes furnished at proportionate prices on orders of a dozen or more amounting to \$1.00 list or more.

## ROLLS

## SINGLE WEIGHT

\$ 1.70	..... 10 feet x 20 inches .....	\$ 2.10
3.40	..... 10 feet x 40 inches .....	4.25
5.00	..... 10 yds. x 20 inches .....	6.25
10.00	..... 10 yds. x 40 inches .....	12.50

## DOUBLE WEIGHT

Any width up to 40 inches, other than the above, furnished in rolls not less than 10 yards in length.

## P. M. C. POST CARDS

## Matte and Glossy

Per Doz.	2 Doz.	$\frac{1}{2}$ Gross	Gross	500
\$ .20	\$ .35	\$ .95	\$ 1.70	\$ 4.40

# ELON

THE OLD RELIABLE DEVELOPING AGENT

Monomethyl Paramidophenol Sulphate

When we recommend a chemical for use with our products we must safeguard results—we must know it's right. We recommend Elon.

*Your stock house can supply Elon—accept  
no more substitutes, none of which  
goes as far as Elon.*

## THE PRICE

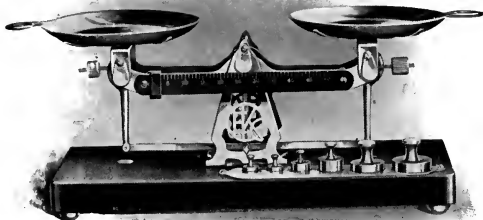
1 oz. bottle	. . . . .	\$ 2.10
$\frac{1}{4}$ lb. bottle	. . . . .	8.00

Canadian Kodak Co., Limited,

Toronto, Canada.

*At your Dealer's.*

An accurate scale with  
obvious advantages



## The Eastman Scale

Specially designed for the convenience of the professional photographer.

There are no small, loose weights—just a sliding weight on a beam and the larger weights for ounces and fractions of ounces, avoirdupois. All bearings are of hardened steel; the beam is black with white markings; all other parts are nickeled.

### THE PRICE

Eastman Scale . . . . . \$6.00

Canadian Kodak Co., Limited,

Toronto, Canada

*All Dealers'.*

A size that's different.

A size that fits.

A size that sells.

*Seven by Eleven.*



## *Eastman View Camera No. 2*

Plan to get the outdoor business this Summer, and include a new camera in your plans. Consider the new size, *seven by eleven*, before you buy. Cut a 7 x 11 mask and place it over any 8 x 10 prints you may have. You will readily see why the 7 x 11 size is better suited to the outdoor group, landscape or architectural subject.

A large sliding front board permits the lens to be centered on either half of the film or plate when two 5 x 7 exposures are desired. The swing is of unusual latitude—in every respect it is the peer of other sizes of the Eastman View Camera No. 2.

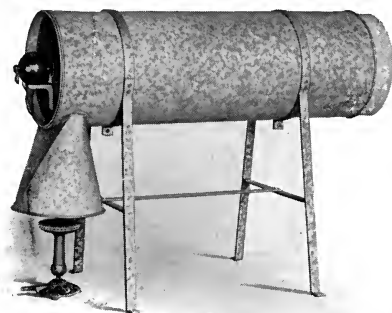
The price, with case and one Eastman Film  
or Plate Holder . . . . . \$62.00

Canadian Kodak Co., Limited,

*All Dealers'.*      Toronto, Canada.

*Use an*

## IMPROVED MAJESTIC PRINT DRYER



Small initial cost—easy to operate—dependable and efficient—nothing to get out of order. A Majestic Print Dryer will enable you to turn out a big amount of work in a little time. The prints will dry thoroughly, properly shaped, in from fifteen to twenty minutes.

Improved Majestic Print Dryer No. 1, complete,  
with 2 drying rolls, electric motor, fan, gas  
heater and stand . . . . . \$38.00  
No. 4, complete, with 4 drying rolls . . . . . 80.00

Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

Kodak manufactures many of its own chemicals to insure the quality and uniformity of its sensitive products and sells these same tested chemicals to insure the quality and uniformity of your results.



*Specify C. K. Co. Tested*

Canadian Kodak Co., Limited,  
Toronto, Canada.

*All Dealers'.*

# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4} \times 6\frac{1}{2}$  to  $14 \times 17$ , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*

# STYLE VENETIAN

FOR 4 x 6 PRINTS, SLIP-IN CORNER STYLE.  
COLORS—GREY AND BROWN.



## *The Venetian*

An attractive, moderate price folder for your 4 x 6 Square Slip-in Corner work. Insert has tinted raised corner design. Cover has a rich engraved finish with tinted and Embossed Crest in upper left hand corner, small flap has serrated edge. A very attractive folder in duplex colors. Be sure and see samples of this style.

**SAMPLE OF ONE SIZE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS  
MADE IN CANADA



The enlargement on

# ARTURA CARBON BLACK

Gets more out of your negative  
than the contact print—retains  
all the contact print quality.



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

*All Dealers'.*



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By Geo. C. Bell  
Madison, Wis.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

JUNE 1919

No. 4

## WHAT FILM DOES

Many of us are jarring loose in these progressive days from ideas to which we had clung all too long. We have learned that a thing is not good enough so long as there is something better—we have come to have convictions and the courage to act upon them.

In photography just now, the one big thing that is better is Film. Without Film the motion picture history of the war would not have been possible, the wonderful Machine Gun Camera could not have been used to make expert marksmen of our aviators and the automatic cameras with which a battle area or a large city can be photographically mapped in a few hours would never have been developed.

We could mention other un-usual accomplishments which owe their success to Film, but the one big thing to the professional

photographer is the fact that Film has broadened his particular field of operations—has not only enabled him to do his practical, every-day task and do it better, but has made practical many of the things that have always been stumbling blocks to the ambitious and progressive workman.

It is not possible to go ahead so long as we stand still, and so far as any really noteworthy progress in the manufacture of negative making material is concerned, portrait photography has been at a standstill for the last thirty years or more.

The greatest real advance of late years, has been in motion pictures. You have only to sit through a modern high-grade screen production, to see it with the eyes of a student or an artist, seeking inspiration, to convince yourself of the fact that it is not the same photography that you practice.

Forget the story, put yourself in the place of the M. P. operator

who made those pictures and ask yourself if you could duplicate them on plates. Some of them—yes, most of them—the unusual ones, the ones that strike you as being marvelously clever and bold and attractive—no. You couldn't do it with plates—you can do it with Film. It's being done every day.

We said, the greatest advance had been in motion pictures—we meant the greatest advance until the introduction of Portrait Film. Portrait photographers are doing wonderful things on Film. There is more variety to their work—to their lighting and posing. More realism, because portraits are being made under more natural conditions, in the home, and by duplicating home conditions in the studio.

Those who have been photographed in their own homes wonder why home portraiture was not thought of long ago. It was thought of and was practiced, but you know with what success. The light was invariably so harsh that the home had to be made over into a studio. Even with artificial light, contrasts were so great that the light had to be greatly diffused.

You couldn't explain this to a customer who lives in a modern home that is properly lighted. The light is only harsh to the photographic material that is not capable of recording light of ordinary brilliancy. The rays of

light penetrate the emulsion of a glass plate, but when they are strong enough to penetrate the glass, they immediately run wild. They spread in every direction—are reflected back upon the under side of the emulsion, overlap and destroy the records of other rays which would otherwise record detail. The result is harshness.

If you do not make home portraits, don't blame the home—don't say that the conditions are too difficult—use Film. It is in the difficult lightings, the unusual conditions both in the home and in the studio, that Film shows its superiority.

If you think there is nothing new in photography it is only because you have exhausted those ideas which were based on the necessity for modifying ordinarily brilliant light. Throw the screens open, let in the light, even sunlight, and you have at hand as many new effects as you can conceive.

There is something new in photography—something worth adopting, because its advantages are basic. Glass placed limitations on the photographer's work—Film removes them.



## ELON

*Goes farther than any other  
developing agent*



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By Geo. C. Bell  
Madison, Wis.*



## THE CHEMISTRY OF REDUCTION

### REDUCTION

By *reduction* in photography is meant the removal of some silver from the image so as to produce a less intense image. Thus, in the case of an over-developed plate there will be too much density and contrast, and the negative may be reduced to lessen this. In the case of an over-exposed negative there may not be an excess of contrast but the negative will be too dense all over, and in this case what is required is the removal of the excess density.

It is unfortunate that the word "reduction" is used in English for this process. In other languages the word "weakening" is used, and this is undoubtedly a better word, because the chemical action involved in the removal of silver from a negative is oxidation, and the use of the word reduction leads to confusion with the true chemical reduction, such as occurs in development.

All the photographic reducers are oxidizing agents, and almost any strong oxidizing agent will act as a photographic reducer and will remove silver, but various oxidizing agents behave differently in respect to the highlights and shadows of the image. Reducing solutions can be classified in three classes:

- A. Cutting reducers
- B. True scale reducers
- C. Flattening reducers

A. The cutting reducers remove an equal amount of silver from all parts of the image and consequently remove a larger proportion of the image from the shadows than from the highlights of the negative. The typical cutting reducer is that known as *Farmer's Reducer*, consisting of a mixture of potassium ferricyanide and hypo, the potassium ferricyanide oxidizing the silver to silver ferrocyanide and the hypo dissolving the latter compound. Farmer's Reducer will not keep when mixed, decomposing rapidly, so that it is usually made by making a strong solution of the ferricyanide and then adding a few drops of this to a hypo solution when the reducer is required. It is especially useful for clearing negatives or lantern slides which show slight fog, and is also used for local reduction, the solution being applied with a brush or a wad of absorbent cotton.

Another cutting reducer is permanganate. The permanganates are very strong oxidizing agents, and if a solution of permanganate containing sulphuric acid is applied to a negative, it will oxidize the silver to silver sulphate, which is sufficiently soluble in water to be dissolved.

Permanganate has only a very



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*By Geo. C. Bell  
Madison, Wis.*



weak action on a negative if acid is not present and this may be made use of for the removal of "dichroic" fog, the yellow or pink stain sometimes produced in development. Dichroic fog consists of very finely divided silver and this is attacked by a solution of plain permanganate which will have no appreciable action on the silver of the image.

An important difference between the behavior of ferricyanide and permanganate when used for reducing pyro-developed negatives should be noted. In a negative developed with pyro the image consists partly of the oxidation product of the pyro associated with the silver. When such a negative is reduced with ferricyanide the silver is removed but the stain is unattacked so that the negative appears to become yellower during reduction, though the ferricyanide does not really produce the color, only making it evident by removal of the silver. Permanganate, on the other hand, attacks the stain image in preference to the silver and consequently makes the negative less yellow. Permanganate can also be used as an alternative to ferricyanide for bleaching negatives, since if bromide is added to the solution silver bromide will be formed and the same bleaching action obtained as with ferricyanide.

*Potassium Permanganate* occurs in dark purple crystals which dis-

solve to form a purple solution. It is easily obtained pure but there is a good deal of impure permanganate on the market; Eastman Tested Permanganate is a very pure product.

In addition to its use for reduction and bleaching, permanganate is employed as a test for hypo, since it is at once reduced by hypo, and the colored solution of the permanganate therefore loses its color in the presence of any hypo. It may consequently be used to test the elimination of hypo from negatives or prints in washing. When permanganate is reduced in the absence of an excess of free acid, a brownish precipitate of manganese dioxide is obtained and sometimes negatives or prints which have been treated with permanganate are stained brown by this material. Fortunately, manganese dioxide is removed by bisulphite, which reduces it still further, forming a soluble manganese salt. The brown stain can therefore be removed by immersion of the stained material in a solution of bisulphite.

A very powerful cutting reducer is made from a solution of iodine in potassium iodide, to which potassium cyanide has been added to dissolve the silver iodide formed during reduction. Iodine is not soluble in water but is soluble in a solution of potassium iodide, and to make up the reducer a few iodine crystals are dissolved in a 10%





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*By Geo. C. Bell*  
*Madison, Wis.*



solution of potassium iodide, and five parts of this are added to one part of a 10% solution of potassium cyanide, making up to 100 parts with water for use.

B. Proportional reducers are those which act on all parts of the negative in proportion to the amount of silver present there. They thus exactly undo the action of development, since during development the density of all parts of the negative increases proportionally. A correctly exposed but over-developed negative should be reduced with a proportional reducer. Unfortunately, there are no single substances which form exactly proportional reducers, but by mixing permanganate, which is a slightly cutting reducer, with persulphate, which is a flattening reducer, a proportional reducer may be obtained.

C. In order to have a flattening reducer, we require one which acts very much more on the heavy deposits than on the light deposits of the negative, and which will consequently reduce the high-lights without affecting the detail in the shadows. Only one such reducer is known, and this is ammonium persulphate. Ammonium persulphate is a powerful oxidizing agent and attacks the silver of the negative, transforming it into silver sulphate, which dissolves in the solution. It must be used in an acid solution and

is somewhat uncertain in its behavior, occasionally refusing to act, and always acting more rapidly as the reduction progresses.

*Ammonium Persulphate* is a white crystalline salt, stable when dry. It has recently been found by the research laboratory of the Eastman Kodak Company that the action of persulphate depends largely upon its containing a very small amount of iron salt as an impurity, and that its capricious behavior is due to variations in the amount of iron present. The persulphate supplied among the Eastman Tested Chemicals may be relied upon to give a uniform action in reduction.



## THE NATIONAL CONVENTION

The executive officers of the P. A. of A. are not worrying themselves this year as to how many will be at the Golden Anniversary Meeting. Their chief concern is to see that the program shall be replete with demonstrations and lecturers that will give you money-making ideas.

There is going to be a great turn-out of manufacturers and your old friends, the salesmen and demonstrators will be there to greet you.

Cedar Point is an entertainment in itself, quite aside from the entertainment provided through the courtesy of the manufacturers and dealers. You just can't afford to stay away.





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*By Geo. C. Bell  
Madison, Wis.*



## FOCAL LENGTH

Where much commercial work is done, or for that matter where any serious attempt is being made to build up a profitable commercial connection, too much attention cannot be given to the question of the most suitable focal length of lens to employ.

All too often there is a "general utility" lens which is made to do duty, perhaps on several cameras and for a large variety of commercial subjects. For the general run of work, if its focal length is on the long side for the plate it is used with, it may be quite satisfactory, but sooner or later the unusual will be met with.

The effect of distortion produced with short focus lenses is well known and guarded against in studio work, but it is just as real when dealing with other subjects. It may almost be stated that a safe rule is to use a lens of the longest focus which the bellows capacity of the camera and the working distance available, will permit, thus securing a more truthful perspective rendering.



### Portrait Film

*does the ordinary thing better—  
the difficult thing best*

## A WORD ABOUT OUR ILLUSTRATIONS

If we all had the same ideas about picture-making—if there was a standard to which we all worked—one ideal result, you can readily see that photography would soon go stale for lack of variety.

We use a great variety of illustrations in this magazine because we try to please all of our readers some of the time. Some of you like soft focus work—some of you don't, and you know it's a difference of opinion that makes horse races.

We think, however, you will agree with us when we say that the work of Mr. Bell is excellent. The soft lines, well-modulated shadows and opalescent highlights possess a quality you can readily appreciate. Such pictures appeal to your imagination. They have a peculiar beauty that can be secured in no other way.

Mr. Bell tells us that he does not make any negatives that are perfectly sharp. He also adds that this is not especially because he himself objects to sharp definition, but because his patrons almost invariably prefer the soft focus work, and it is only natural that he should give them what they want. He has made a reputation on such work, and his business is with the best class of people in his community.

We believe the nature of the



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*By Geo. C. Bell  
Madison, Wis.*



work you offer your patrons should be governed by what they want, and there are many conditions that determine or at least influence these wants.

A portrait is not artistic simply because it is slightly out of focus. The photographer must put even more quality in diffused portraits than in sharp ones. The high-lights must be well placed, the expression especially characteristic and the modeling even stronger than for ordinary work to allow for the softening effect of the lens.

The fact that Mr. Bell's soft focus portraits are unusually fine examples of this style of work may have been the greatest factor in influencing his patrons. We do not like a new thing simply because it is new. But if we see a new thing that at once impresses us as having exceptional quality, we will most likely prefer the new to the old.

Mr. Bell is very frank and generous in giving credit to the material he uses, for its share in his success. He says: "I have been a user of Portrait Films almost since the time they were placed on the market and can say Film is the only medium that has given me what I want in a negative. I do not handle them as carefully as some think necessary. I find I can "treat 'em rough" and not spoil my results nearly as quickly as I would with glass plates. In fact, if I con-

sider quality at all I would rather pay the list price for Films than to get glass plates for nothing. I use Artura paper and E. K. chemicals, as I am sure of results with them."

We regret that with the half-tone process it is only possible to reproduce a limited number of tones—fewer by far than are found in such prints as those with which Mr. Bell has supplied us. Our illustrations will give, however, a very good idea of the pleasing characteristics of his work which we think typifies the best in this particular style of portraiture.



## BACK TO STAY

The announcement of the return of Elon to the ranks of of available developers was a welcome one to the profession, Elon in pre-war days having justly earned for itself an enviable reputation; in combination with Hydrochinon it forms a developer which has never been excelled for the production of prints of high quality, both in tonal gradation and color, on professional paper like Artura.

Elon has already been accorded a hearty reception, and while its first re-appearance was in the smaller sizes of packages, we are pleased to say that with increased production the full range of containers is now available. The prices will be found on page 25.

## WHY ADVERTISE?

In a recent number of the *Editor and Publisher*, a page devoted to the Editor's talks with the Ad-Man deals at length with reasons why the photographer should advertise in his local papers. We reprint a part of the dialogue.

"One line in this section has never been advertised."

"What's that?"

"Photography."

"Granted. I never thought of it."

"I did—this morning for the first. I happened to be at the Randolph Studios with my wife. We had brought our boy down for a sitting. It was the first photograph in about three years. And it frightened me when I thought that if the good Lord had taken him from us, we would not have had a good picture."

"Randolph is a wizard. He knows exactly how to handle children. I looked over his studies of youngsters and they are really remarkable. Yet we stumbled on this fact quite by accident. It is almost criminal that the studio is not advertising every day in the week—reminding careless parents not to neglect having pictures taken of their children. It's a rush age—I do not think that as many pictures of this sort are produced as in days gone by. We have grown out of the idea of sentimentally valuable portraits."

"I get your point—and it's true, too."

"Of course it is. Randolph could keep that shop of his busy every minute from sun-up to sun-down, if he came out with a special campaign telling this town how necessary it is to keep a photographic record of the children in every family—step by step—as they grow to maturity. He could explain why he had been so successful at it—why he had made a substantial success. Then there is the mother and the babe appeal. I tell you—people need reminding—none of us are as MUCH photographed as in the good old days when I was a boy. I can remember some member of my family was forever having his picture taken."

"I thoroughly believe in photographs. They begin to get infernally valuable after the first or second generation—it's when folks are gone that we want something tangible to remember them by. The photographer has only himself to blame. He has permitted people to forget and gradually to lose interest. He has NEVER advertised consistently. Other lines DO. That's what keeps them alive."

"I'll nod approval to that. When you stop to figure it out you see that the photographer is an advertising slacker. He hangs out his shingle and waits for the trade to come in—he does very little to develop business, keep it alive or increase it."



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*By Geo. C. Bell  
Madison, Wis.*







PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By Geo. C. Bell  
Madison, Wis.*



"Right. Now I claim that Randolph stands in his own light when he doesn't awaken local interest in his shop. I venture the assertion that every family in this town would have photographs taken sooner or later if the appeal was put properly in printer's ink."

"Soldier stuff."

"Sure, I was coming to that. When a man has been across—or even into training camp—when he has answered the call of his country, he has done a big thing. Twenty years from now he will want to remind folks of it—he will even want to be tangibly reminded of it himself.

"Sweethearts want these pictures of men in uniform—mothers want them—fathers—friends. History has a way of richening as time advances. The photograph of to-day will, a few years from now, be a most precious human document. Yet I do not see that our home photographers are coming out in our paper with that story. They say: 'Well, if they want a photograph they will come and have it taken.' That's fine business logic, isn't it?"

"Typical though," retorted the Ad-Man. "Some day you'll learn that the merchant is about the same now as he was before the first ad appeared. He doesn't change. To make him advertise is a man's size job. Believe me—I know."



## THE THING THAT PLEASES

Your sitters will select this or that style or size or finish for a portrait but they leave it for you to please them in the most important of all things—expression.

It is quite true there was a time when the all-important thing was for the subject to hold still. If he or she didn't move during the exposure the picture was a success—it had to be for photography didn't lie.

But those days have passed. Photographs must record more than a map of one's features.

Good photography is always essential as a foundation, but your customer does not make a choice between two proofs because one is poor and the other is good photography. Expression most often influences the decision. It isn't safe to show proofs from negatives that are under-exposed or otherwise defective and trust that they will be discarded because they lack quality. They must be printable, for the chances are that the proof from the negative of poor photographic quality will be the one selected if the expression is good.

Expression, then, is one of the biggest factors contributing to the success of the photographer, for it has most to do with securing the approval or disapproval of the sitter. But there has been a wonderful improvement in the



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*By Geo. C. Bell  
Madison, Wis.*



method of securing a satisfactory expression. "Perfectly still—moisten the lips—look pleasant—eyes here—now hold that," were common instructions to the sitter in the days of head rests, slow plates and slow lenses, but they won't do to-day.

Satisfactory expressions are not made to order, they must be induced. The very small child should be entirely unconscious of the picture-making process. What you are doing must be play. A boy must be interested—you must draw him out. A few sentences should give you your cue as to what will interest him most. "Well, boy, what is on your mind these fine days, Boy Scout hikes, base ball or a vacation trip?" Some such inquiry will usually give you your lead and once you get it, if you know boys at all, you can keep him interested and get real boy expressions. But you must use tact. Boys are hard to fool. Girls are much easier to handle, for they are not nearly so self-conscious or awkward.

And, naturally, grown-ups are the most difficult. If every man played golf or was an automobile fan and every woman enthused over music or art or flowers, an interesting and pleasing expression could easily be secured by turning the conversation to one of these subjects.

Success lies in your ability to search out the particular subject

of conversation that will bring the flash of interest to your sitter's face—that animation of expression that is the very life of any good portrait. You must preserve your dignity with one sitter—must feel your way carefully, while with another the mention of almost any subject of general interest will bring life to the features. Then there are sitters whose every action is so self-conscious that it is almost impossible to catch them off their guard.

The mistake is often made of making a head and shoulder portrait of a subject when the best likeness would be secured in a full or three-quarter figure. A characteristic pose is often an important part of a man's expression. A head and shoulder portrait of Lincoln, Joffre, Foch, Haig or Lloyd-George might be a good portrait but not a complete likeness, because it would not give a complete idea of the man.

A lady came into a studio, bringing a friend for a sitting. In the conversation that followed the introduction the lady complimented the photographer on her own portrait. She said it was the only one she had ever had made with a satisfactory expression and she was really ashamed of the large number of them she had given away.

Remarks of this nature lead one to believe that expression is the thing that pleases.



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*By Geo. C. Bell  
Madison, Wis.*



## CHANGE YOUR BACK- GROUNDS

Some photographers cling religiously to their old backgrounds. They keep them in use, in fact, until those backgrounds become a sort of trade-mark on their photographs. When a customer shows her photograph to a friend, the friend at once remarks: "Taken at So-and-so's. I see he is still planting everybody in front of that old birch tree with the thunder-cloud behind it."

A good background is always a good background unless it happens to get damaged. The ground that was pictorially pleasing five years ago is no less pleasing today. The point to be remembered, however, is that the public constantly demands something new, and however successful a background may have been in its early days, it does not pay to keep it going until it has become stale in the eyes of your customers.

You can often sell or trade grounds that are in good condition, for they will be as good as new ones to the photographer in an entirely different locality. If you can not sell or exchange them, get rid of them in some other way.

We have heard of one photographer who made a clean-up of all his old backgrounds and put them to practical use. The fabric in them was perfectly

good, so he used them as a wall covering for his reception room. No, he didn't leave them as they were, to be sure. They were cut in panels and wooden strips were used to join the panels. The fabric was painted a neutral tone, and that photographer now has a very desirable as well as an artistic wall covering for his reception room.

The cost of a few really good grounds is insignificant when the stimulating effect it has upon your business is considered. This stimulating effect is felt not only by yourself but by your operator and printer and everybody connected with the studio. A new ground suggests new poses and new lightings and keeps alive the desire for new ideas and freshness in your work.

When business is good, think of every possible means of keeping it good. About one-third of every picture that leaves your studio is background. Don't let this part of the picture detract from the portrait. Don't let it become a trade-mark by which your work can be recognized. Keep business good by making the very newness of your work an advertisement.

## ELON

*Your dealer has it—the  
price is right*

MOTHER and the girls don't mind being photographed—why not persuade Dad and the boys to make the family picture record complete?



*Make the  
appointment  
to-day.*

## THE PYRO STUDIO

Line cut No. 264. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4} \times 6\frac{1}{2}$  to  $14 \times 17$ , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*



# ELON

(Monomethyl Paramidophenol Sulphate)

The standard pre-war developer.  
The standard in war photography.  
Make Elon your standard.

*Elon goes farthest.*

## THE PRICE

1 oz. bottle	. . . . .	\$ 2.10
$\frac{1}{4}$ lb. bottle	. . . . .	8.00
$\frac{1}{2}$ lb. bottle	. . . . .	15.50
1 lb. bottle	. . . . .	30.00

Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

# WRATTEN SAFELIGHT LAMPS

Embody the correct lighting principle—soft, indirect light with Safelights that give a definite degree of safety. The former is necessary for comfort, the latter to preserve the fog-free quality of your negatives.

Safelights are made for film or plates of varying degrees of sensitiveness and may be quickly interchanged. The series 2 Safelight is furnished unless otherwise specified.

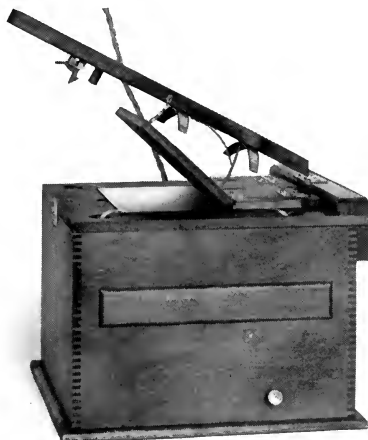


Wratten Safelight Lamp, No. 1, . . . . .	\$13.50
Do., No. 2 without slide for white light, . . . . .	10.50
Series 1 Safelight, for all plates not color sensitive, 8 x 10, . . . . .	1.20
Series 2 Safelight, for Orthochromatic Film or Plates, 8 x 10, . . . . .	1.20
Series 3 Safelight, for Panchromatic Plates, 8 x 10, . . . . .	1.20

Canadian Kodak Co., Limited,

Toronto, Canada

*All Dealers'.*



*Save time—use two printers*

## THE NO. 1 EASTMAN PRINTER

Answers every requirement. Use it for proof printing—use it for small work—use it for breaking in an apprentice. You can always find use for two printers, and this one is thoroughly practical, convenient and economical.

Has automatic switch, lamp adjustments, red light and slide for ground glass. Burns two 60-Watt lamps and takes all negatives up to 5 x 7.

The price, with red lamp, cord and plug to  
fit ordinary electric socket, . . . \$17.50

**EASTMAN KODAK COMPANY**

ROCHESTER, N. Y.

*All Dealers'.*

Chemicals have the same bearing on the results you get from sensitive materials as they have in our production of sensitive materials.

We use the same care in testing chemicals for your use—for our use. Our interests are identical.

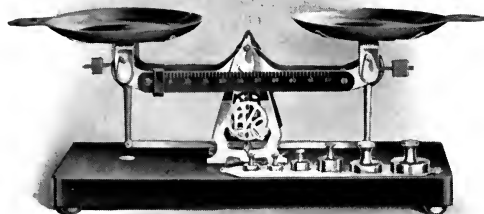
*Use Kodak Tested  
Chemicals.*



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You expect accuracy in a scale—  
you get accuracy with simplicity in

## THE EASTMAN SCALE

Examine the weights—each one is carefully turned and tested—the bearings are hardened steel—a sliding weight on a beam eliminates small, loose weights. It's a thoroughly practical scale, designed especially for your convenience.

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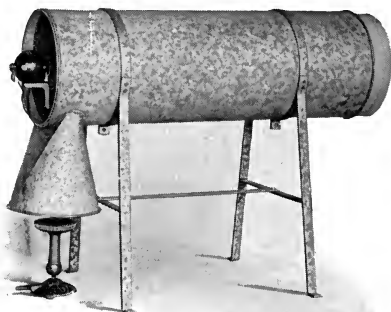
Eastman Scale . . . . . \$6.00

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*All Dealers'.*

*Use an*

## IMPROVED MAJESTIC PRINT DRYER



Small initial cost—easy to operate—dependable and efficient—nothing to get out of order. A Majestic Print Dryer will enable you to turn out a big amount of work in a little time. The prints will dry thoroughly, properly shaped, in from fifteen to twenty minutes.

Improved Majestic Print Dryer No. 1, complete, with 2 drying rolls, electric motor, fan, gas heater and stand . . . . .	\$38.00
No. 4, complete, with 4 drying rolls . . . . .	80.00
No. 5, complete, with 5 drying rolls . . . . .	80.00

Canadian Kodak Co., Limited,

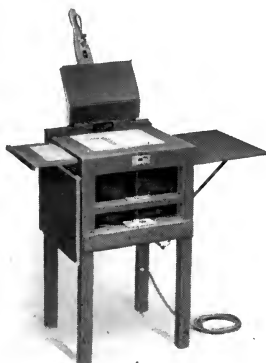
Toronto, Canada.

*All Dealers'.*

## Two Good Printers

### CROWN PRINTER

#### *Sturdy and Practical*



The bank of lights is automatically switched on when the hand operated pressure pad is brought into full contact with paper and negative. A locking device on the lever maintains the pressure during exposure.

Excellent diffusion of illumination and rigid support for vignette or mask is provided by the glass in the sliding frame. The white light may be switched on and pressure pad elevated, permitting adjustment of mask or vignette.

#### *Price without lamps*

No. 1, 8 x 10 . \$34.00      No. 2, 11 x 14 . \$42.00

### F. & S. PRINTER

#### *Rapid and Efficient*

Foot treadle operation leaves both hands free for adjustment of the negative and paper, increasing the production. The lights may be turned on without lowering the pressure pad, permitting adjustment of vignette or mask.

Full illumination, or any one of the three rows of lights may be switched on separately, according to the density and quality of the negative, providing for dodging while printing.



#### *Price without lamps*

No. 1, 8 x 10 . \$44.00      No. 2, 11 x 14 . \$50.00

**FOLMER & SCHWING DEPARTMENT**

**EASTMAN KODAK CO.**

**ROCHESTER, N. Y.**

# STYLE VENETIAN

FOR 4 x 6 PRINTS, SLIP-IN CORNER STYLE.  
COLORS—GREY AND BROWN.



*The Venetian*

An attractive, moderate price folder for your 4 x 6 Square Slip-in Corner work. Insert has tinted raised corner design. Cover has a rich engraved finish with tinted and Embossed Crest in upper left hand corner, small flap has serrated edge. A very attractive folder in duplex colors. Be sure and see samples of this style.

**SAMPLE OF ONE SIZE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS  
MADE IN CANADA



The enlargement on

# ARTURA CARBON BLACK

Gets more out of your negative  
than the contact print—retains  
all the contact print quality.



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

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PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By M. B. Nicholson  
Kansas City, Mo.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

JULY 1919

No. 5

## GET AT THE FILM FACTS

When you want to get at the facts of a thing—when you want your information to come straight from the original source, you ask the man who knows by experience. Naturally enough, if the subject in which you are interested is negative-making material and the question concerns the relative merits of Plates or Film, you would expect to get your information from the man who makes the negatives—the operator or photographer.

Ask him why he uses Film and he will be glad to tell you, but you will get only a part of the story. To get it all you will have to interview the printer and retoucher and receptionist. In fact, you will find everyone in the place will have something to add to the good word the photographer speaks of Film.

We have had a lot to say about the qualities of Film and our

demonstrators have been proving our statements as fast as they can make demonstrations, but Film's reputation for quality is traveling even faster. R. Waldo Tyler, a New England commercial photographer, writes us: "Your representative called on me yesterday and I was glad to see him but he was a little late to convince me of the superiority of Eastman Portrait Film, for I have known it for some time."

But why should the printer be interested in Film? Possibly you have been a printer yourself, or, if not, you have supervised your printing carefully enough to know that about 25% of the negatives made require about 50% of the printer's time to secure the best results. Now let's see what the printer has to say. One of the best known Minnesota photographers, whose name we won't mention because we haven't asked his permission, has a good printer. We quote what the printer says: "If Mr. — ever

goes back to plates he certainly will have to get a new printer. My work is much easier because I have so much better negatives to print. Very little masking, blocking-out and printing-in. The Portrait Film is in our Studio to stay, if I have any say in the matter."

Naturally, this lessening of the printer's troubles not only means prints of better quality but also greater efficiency and less waste. Yes, Film means a lot to the printer and he likes it when he has tried it out. It is up to the printer to produce the print the customer pays for. He is most vitally interested in the quality of the negative he is to print from. He knows better than anyone else what the negative will produce. Why shouldn't his opinion be worth while? Ask him and he will tell you it is the quality and uniformity of Film negatives that appeal to him.

Since we have started on these interviews we might as well hear what the retouchers have to say. Some have remarked on the great reduction of work on negatives of rough, freckled or red-faced subjects. Others see special advantages in the speed with which Film can be retouched, claiming as much as 100% greater speed in retouching Film negatives, due to the resilient surface and the better rendering of flesh tones.

Two retouchers for the Trade, of Oklahoma City were asked by

one of our demonstrators to give their opinion of Portrait Films. A. Heringer says: "I like them much better than plates. In the first place, I can ship and receive them without being afraid of breaking or finding them broken. I find no difficulty in retouching them, in fact, they are easier to retouch."

And Geo. W. Smith, after stating that he uses a harder pencil for Films because they take the lead so easily, makes a statement that has weight and is very convincing, coming from a man who retouches for the trade, who knows negative quality and has an exceptionally good opportunity to judge the work of a number of customers. He says: "One fact impresses me, and that is that I find the average photographer who has changed to films has considerably improved the quality and uniformity of his work. I am speaking of old customers who formerly sent me plates to retouch. Their Film negatives show a marked improvement over their former negatives."

If you were sure you could improve the quality and uniformity of your work by using Films you would use them, wouldn't you? There is only one way we know of making sure—of convincing yourself that our claims are well founded. That is to use Film—to see what results *you* can obtain in *your* work.



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By M. B. Nicholson  
Kansas City, Mo.*



You are not interested in what Film does for others, but you are interested in what Film will do for you and should profit by the experience of others. The War has given photography a wonderful impetus, for photography played one of the biggest parts in the War. Everyone is now expecting big things of photography in Peace.

Film is the biggest thing in photography to-day—it is the greatest advancement—it has the greatest possibilities—it enables you to put your work on a higher and broader plane. It gives you the opportunity to do better work, to do more difficult work, because you can do things you have never before dared to attempt. Film has broadened photography and Film will broaden you and your work.

The public demands the new things that Films have made possible because Film users have given them something new. They have put sunshine in their studio pictures as well as their home pictures, and the results are pleasing. The things that couldn't be done with dry plates have been made possible with Film—are being done every day with Film, and you can do them. Let the Film Demonstrator have a chance and he will prove our claims and the claims of photographers, printers and retouchers.



## GOLDEN ANNIVERSARY OF THE P. A. OF A.

CEDAR POINT, OHIO, JULY 28-AUG. 2

Be ready for a good convention and a good time. Business, instruction, amusement, recreation and rest—there will be ample opportunity for a sprinkling of each, and all are vital to a successful summer convention.

An excellent educational program has been prepared, and the Board feels confident the program will be sufficiently diversified to please everyone. Also, the hours have been so arranged that you will have time to hear lectures, chat with your friends, study exhibits, visit with the dealers, take a dip in the surf, eat good food leisurely and smoke your after dinner cigar by moonlight.

It promises to be a mighty interesting meeting and you will be glad you have taken a part in it. If you have never visited Cedar Point you will enjoy the experience—it will be an excellent vacation. If you have, it isn't necessary to urge you to come again.

### COMMERCIAL PHOTOGRAPHERS

Mr. F. G. Rose, 116 Erie St., Toledo, Ohio, Chairman of the Commercial Prize Competition Committee, urges commercial photographers to send an exhibit for the Grand Sweepstake Prize



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By M. B. Nicholson  
Kansas City, Mo.*



which will be the only prize event of the convention.

This exhibit will be one of the big features and will attract special attention to commercial photography. You have negatives in your files that will make wonderful prints—every commercial photographer has made work that is exceptionally good. Send three prints with entrance fee and then come and see this wonderful exhibit.

There are no strings to this prize—the best three prints takes it.

The three prints may include subjects of any nature other than portrait, pure landscape or genre.

Only three photographs can be entered and the entrance fee is \$2.00.

The sum total of entrance fees will be awarded to the set of photographs considered by the judges to be the best.

The judging will be fair because the judges will be men you are continually working to please: an advertising man, an employing photo-engraver and a buyer of photographs.

You have only to be a member of the P. A. of A. to compete. Write to the vice-president, Mr. C. F. Lewis, 1217 Madison Ave., Toledo, Ohio, who is to receive the entries, that you will be a contestant.

If you are not a member, apply to J. C. Abel, Secretary, 421 Caxton Bldg., Cleveland, Ohio.

## THE CHEMISTRY OF INTENSIFICATION AND TONING

### INTENSIFICATION

Intensification is photographically the opposite of reduction, the object being to increase contrast. This is done by the deposition of some other material on the silver image. A silver image, for instance, can be very much intensified by toning it with uranium, the reddish brown uranium ferrocyanide having very great printing strength and making quite a weak negative into one having a great effective contrast for printing purposes. Usually, however, intensification is formed by depositing silver or mercury upon the image, and most photographic intensifiers depend upon the use of mercury.

Mercury is a metal which forms two series of salts, the mercuric salts, which are in a higher degree of oxidation, and the mercurous salts.

Many of the mercuric salts are insoluble in water, but mercuric chloride is sufficiently soluble for practical use, and when a silver image is placed in a solution of mercuric chloride, this reacts with the silver and forms a mixture of mercurous chloride and silver chloride.

The bleached image, which appears white, can then be treated in various ways. If it is developed, for instance, both the





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silver chloride and the mercurous chloride will be reduced to the metal, and in addition to the silver, with which we started, we shall have added to every part of silver an equal part of mercury. Instead of using a developer we may blacken the image with ammonia, which forms a black mercury ammonium chloride and produces a high degree of intensification

*Mercuric Chloride* is a virulently poisonous salt known popularly as "corrosive sublimate." Its only use in photography is for intensification, and it is obtained in white, heavy crystals which are soluble with some difficulty in water.

For many purposes separate bleaching and redevelopment is inconvenient, and for this reason the *Eastman Intensifier* has been placed on the market, this consisting of a mercury solution in which the intensification proceeds continuously so that it can be stopped at any time. This does not give quite so great an intensification as the use of the two solutions, but it is far more convenient in operation.

A very powerful method of intensification, used chiefly for

negatives made by photo-engravers, is obtained by bleaching with mercuric chloride and blackening with silver dissolved in potassium cyanide. The use of the cyanide cuts the shadows very slightly at the same time that the highlights are intensified, so that a great increase in the contrast of the negative is obtained. This is usually known as the "*Monckhoven*" *Intensifier*.

The only other intensifier which calls for notice here is the chromium intensifier. The silver image is bleached with a solution of bichromate containing a very little hydrochloric acid, bichromate being an oxidizer of the same type as permanganate or ferricyanide. The image is then redeveloped and will be found to be intensified to an appreciable extent. This intensifier has found increasing favor owing to the ease and certainty of its operation

*Potassium Bichromate* is made by the oxidation of chromium salts. It forms orange red crystals, stable in air, and is easily soluble to a yellow solution. It is obtained in a pure form by crystallization. Potassium bichromate is used in photography both for bleaching negatives and for sensitizing gelatine, fish glue, etc. When gelatine containing bichromate is exposed to light it becomes insoluble in water and in this way images may be obtained in insoluble gelatine.

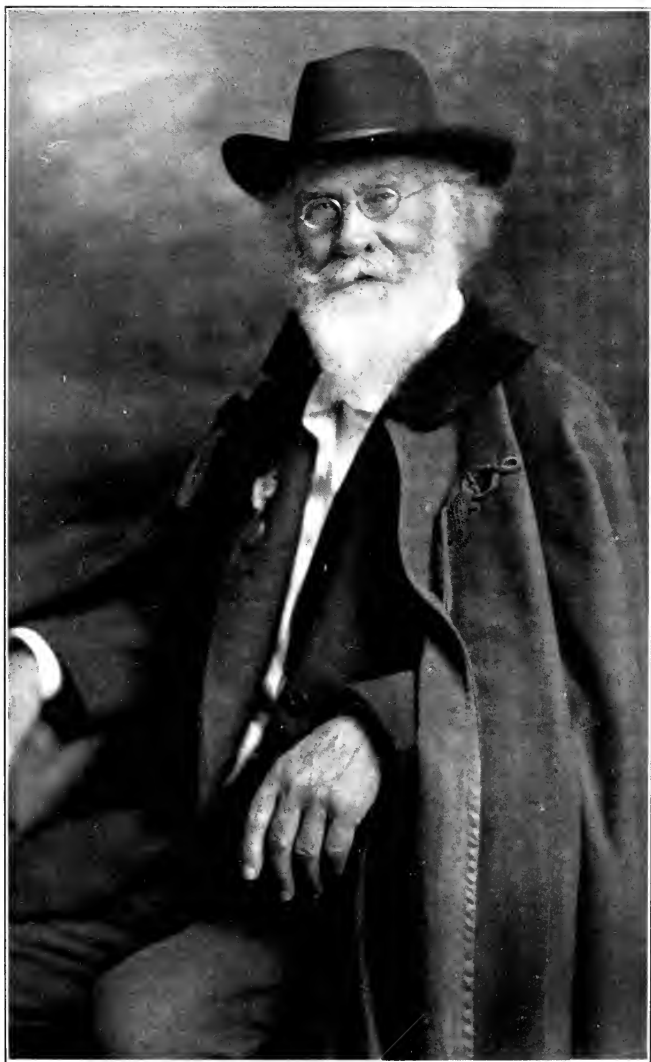
#### TONING

Silver sulphide is the most insoluble compound of silver, and

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*Standard now, as before the war.*

*At your dealers'.*



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Kansas City, Mo.*



consequently if a silver image or a silver halide salt is treated with sulphur or a sulphide, respectively, they will at once be transformed into silver sulphide. Silver sulphide has a color varying from light brown to black, according to its state of subdivision, and the transformation of the image into silver sulphide is by far the most popular method of toning developing-out paper prints, the prints so toned being generally known as "sepia" prints.

There are two general methods of transforming the image into silver sulphide:

A. Direct toning, with the hypo alum bath; and

B. Bleaching and redevelopment.

A. As was explained in the article dealing with fixing, when an acid is added to a solution of hypo, it tends to precipitate sulphur. Now, a solution of alum in water is weakly acid, so that if alum is added to plain hypo without any sulphite present, the solution will, after a time, become turbid and precipitate sulphur. This solution of alum and hypo at the point where it is ready to precipitate the sulphur may be considered as having free sulphur in solution, and if prints are immersed in a hot solution of alum and hypo, the silver image will be converted directly into silver sulphide and the prints will be toned brown. Only one precaution is necessary in order

to obtain successful results with the hypo alum toning bath. The bath tends to dissolve the image and consequently if a fresh bath is used, it will weaken the print, eating out the high-lights. In order to prevent this a little silver must be added to the bath, either in the form of silver nitrate or by toning a number of waste prints or by throwing in old Solio prints, which contain free silver. A bath lasts for a long time, and as a general rule a hypo alum which has been somewhat used works better than a fresh bath.

B. The greatest objection to the hypo alum bath is that the bath has a somewhat disagreeable odor, sulphur compounds being liberated from it, and it is rather troublesome to use a bath which has to be heated, so that while hypo alum toning is used on the large scale, smaller quantities of prints are commonly toned by bleaching the silver bromide print in a bath of ferricyanide and bromide, and then treating the bleached print, after washing, with sodium sulphide, which converts the silver bromide directly into silver sulphide.

*Sodium Sulphide* occurs in white, transparent crystals, which have a strong affinity for water and so quickly deliquesce unless kept carefully protected from the air. It is best kept in a strong stock solution. It is a chemical which very often contains impurities, chiefly iron, and only "tested" sulphide should be used. Old sodium sulphide often



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By M. B. Nicholson  
Kansas City, Mo.*



contains hypo, since hypo is produced in the oxidation of sulphide, and if hypo is present in any considerable amount, some of the silver bromide will be dissolved by it and the print will lose strength in the high-lights and give a very inferior result.

All sulphides give off a certain amount of hydrogen sulphide, which smells offensively, and which is extremely dangerous to photographic materials, since a very small amount of hydrogen sulphide will convert enough of the silver bromide or chloride of the material into sulphide to produce a severe fog. No photographic materials should therefore be stored in a room where sulphides are kept or where sulphide toning is done.

It has already been explained that the color of silver sulphide depends upon its state of division, and since the state of division of the toned image depends upon that of the untuned image and this again upon the treatment of the material, it is evident that the exposure and development of the print will have an effect upon the result obtained. As a general rule, it may be stated that to get good colors in sulphide toning it is necessary that a print should have been fully developed and not overexposed; a print which is very fully exposed and then developed for a short time will not give a good tone.



## THE MAN WHO MADE THE PICTURES

The impression one gets of Mr. M. B. Nicholson is intensified by the impression one gets of the studio itself. You often get a good impression of a man as soon as you come in contact with his environment. The freshly decorated studio indicated progressiveness, good taste and prosperity—and like any good business man with sufficient artistic instinct to make a good first impression in the appearance of his place of business, he follows it up with a second good impression in the quality of the work he produces.

Since we have mentioned decorations, we might add that those of the Nicholson Studio are rather unique. The color scheme is a delicate buff for walls, with dark brown and gold trim. Occupying one end of the large and comfortable reception room is a fountain which always interests the children and adds color and freshness to the surroundings. The water sprays into a basin, which is also an aquarium of brilliantly colored fish and this is bordered with growing plants. But these things are entirely lost sight of when a child discovers that a miniature electric train has its right-of-way around the fountain's coping. If that child has been cross and peevish, the influence of the toy train is felt as soon as the wheels begin to turn.

Mr. Nicholson is rather diffident and has little to say of himself and his own work but spoke freely and enthusiastically of Portrait Film. He said, in effect, "My only regret is that I did not adopt Film long ago. We have had the studio torn up for the greater part of the time we have been using Films and we are now in a position to handle our work with greater efficiency and with a decided improvement in technique.

"This isn't our best work—our best work has not been made. There will always be a better result to work for, but we now have the means of greater accomplishment. You may think the comparison over-drawn, but the more I work with Films the more firmly I am convinced that Portrait Film is almost as great an advance in photography as the discovery of the X-Ray was in surgery. Film has revealed those qualities in light to which the plate is blinded by halation. Film sees, absorbs and reproduces, without harshness, the detail of

brilliant lights and deep shadows. The hidden qualities of light are registered in the negative and we can reproduce them in the print.

"These things have made a firm convert of me, and the ease with which Film is handled, the fact that breakage is eliminated—such things as these are big factors in efficiency. I also use Artura Paper, which I find reproduces fully all the half-tones of the negative. I trust Portrait Film will continue to blaze the way to better photography and more profits."



## PHOTOMICROGRAPHY

Photography, in one form or another, has become so inseparably connected with almost every field of human endeavor that no one man can successfully master every phase of photographic work. There must be specialists but, as a rule, these specialists have taken up photography because they were compelled to do so. The physician became an X-Ray specialist because it was easier for him to master X-Ray photography than for the photographer to master the necessary knowledge of medicine or surgery.

And the same holds true in the application of photography to many branches of science. But it is also true that the commercial photographer is constantly

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(Monomethyl Paramidophenol  
Sulphate)

*It's one of the Tested Chemicals—we recommend it—  
we know it's right.*



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Kansas City, Mo.*







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*By M. B. Nicholson  
Kansas City, Mo.*





Ferrite and Pearlite in Steel  
Magnified 1500 diameters

broadening his knowledge and is becoming more nearly a technical than a commercial photographer.

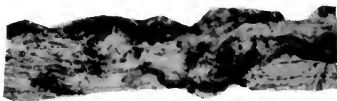
There is much technical photographic work that can be done better by the photographer in co-operation with the technician than by either working alone. This is especially true when applied to photomicrography.

When a big gun, a sky scraper, a steel bridge or a powerful engine is to be built, the entire

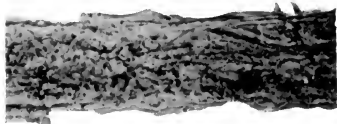
structure will be no stronger than its weakest part. The constitution and structure of the metals used must be known. Under the microscope the flaws are seen and photography records them.

More and more the element of chance is being eliminated. The engineer must know the structure of the metal he uses and depends upon the microscope for his tests just as the physician depends upon the report of the bacteriologist for his diagnosis of a diseased body, and both prefer photographic evidence.

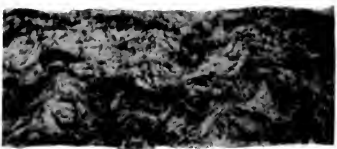
The microscopist is not always a photographer, and the photographer is seldom a microscopist, but if he has a trend towards



Plant Fiber Paper—175 diameters



Flax Paper—175 diameters



Brown Wrapping Paper—175 diameters  
*Cross Section Photomicrographs*

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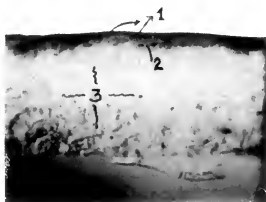
*Will give you better results.  
Your dealer has it in stock—  
the price is right.*



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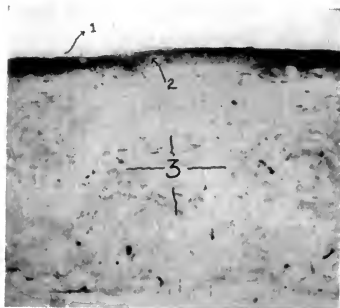
*By M. B. Nicholson  
Kansas City, Mo.*





Thin Stock Photographic Paper

1 Silver Deposit, 2 Sub-stratum, 3 Paper Stock—175 diameters



Heavy Photographic Paper

1 Emulsion layer fixed out, 2 Sub-stratum of Baryta, 3 Paper stock—175 diameters

technical work he can soon master enough of the subject to make satisfactory photomicrographs either of transparent or opaque subjects. The amount of this work which the technical photographer might find to do

would determine whether or not he would own a complete outfit or work with the microscopist and furnish only the necessary photographic knowledge and apparatus.

The apparatus for photomicrography consists of a source of light, condensing system, microscope and camera, all of which should be rigidly connected together so that the slightest vibration will affect every part of the apparatus in the same degree. Also, the apparatus should be capable of being fixed accurately in a straight line. Elaborate apparatus is not necessary if these requirements are fulfilled, but if much work is to be done, a piece of apparatus known as an optical bench is almost essential. This is a heavily constructed bed to which the instruments may be attached and on which adjustments can be made with accuracy.

Of the microscopes themselves little need be said except that only a first class instrument is really suitable for photomicrography. A suitable light source is a part of the equipment and is usually listed with it.

The objective lens of a microscope gives the initial magnification. The eyepiece, in turn, magnifies the original image. If the initial magnification is 40 and an eyepiece of 10 is used, the result will be a 400 times magnification on the ground glass of the camera when it is ten inches from

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*Will give you better results.  
We recommend it—we  
know it's right.*



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## ELON

*Your dealer has it in stock.*

the eyepiece. If the camera extension is twenty inches the magnification will be twice as great. And negatives may be made without an eyepiece or with eyepieces which give different magnifications.

Filters play an important part in the contrast of specimens photographed when colors are involved, the background of transparent specimens affects contrast and it is often necessary to line the inside of a microscope tube with black velvet to eliminate reflections.

If it is found that an ordinary camera can be attached to the optical bench and held sufficiently rigid, the lens is removed and the camera so adjusted that the eyepiece of the microscope projects inside the lens barrel, occupying about the same position as the camera lens which has been removed. Extraneous light, of course, must be excluded. The ground glass of the camera should have a three-quarter inch circular cover glass cemented to the center of the ground glass side with Canada Balsam, a pencil cross having been made on the ground glass before cementing. This enables one to do fine focusing with a magnifier.

There are detailed instructions for centering the image and focusing but these are only of interest to one actually engaged in the work. The main difference between the photomicrography of transparent and opaque materials is in the method of illumination, a specimen of a metal requiring vertical illumination, since the photograph is made by reflected light, while the transparent specimen is photographed by transmitted light, the lighting arrangement being varied accordingly.

We might go into lengthy details of the various steps in the work, but the purpose of this article is merely to give a general idea of photomicrography and its importance to the technical worker. Details of the subject would be of little interest to any but those who have taken up the work, or seriously contemplate doing so. The booklet "Photomicrography" covers the subject, giving much detailed information, and will be mailed on request to Microscopists, Photomicrographers or technical photographers who contemplate doing such work.

## Portrait Film

*does the ordinary thing better—  
the difficult thing best*



THERE will be a broad gap in the family record if you don't have another picture of those growing youngsters soon.

Make it a group picture this time, including mother and Jane.

## THE PYRO STUDIO

Line cut No. 265. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4} \times 6\frac{1}{2}$  to  $14 \times 17$ , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*



# ELON

(Monomethyl Paramidophenol Sulphate)

The standard pre-war developer.  
The standard in war photography.  
Make Elon your standard.

*We recommend it—we know it's right.*

## THE PRICE

1 oz. bottle . . . . .	\$ 2.10
$\frac{1}{4}$ lb. bottle . . . . .	8.00
$\frac{1}{2}$ lb. bottle . . . . .	15.50
1 lb. bottle . . . . .	30.00

Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

# WRATTEN SAFELIGHT LAMPS

Embody the correct lighting principle—soft, indirect light with Safelights that give a definite degree of safety. The former is necessary for comfort, the latter to preserve the fog-free quality of your negatives.

Safelights are made for film or plates of varying degrees of sensitiveness and may be quickly interchanged. The series 2 Safelight is furnished unless otherwise specified.

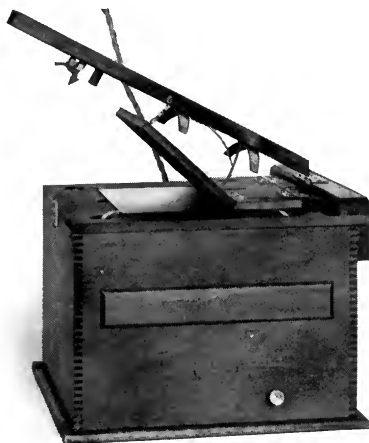


Wratten Safelight Lamp, No. 1, . . . . .	\$13.50
Do., No. 2 without slide for white light, . . . . .	10.50
Series 1 Safelight, for all plates not color sensitive, 8 x 10, . . . . .	1.20
Series 2 Safelight, for Orthochromatic Film or Plates, 8 x 10, . . . . .	1.20
Series 3 Safelight, for Panchromatic Plates, 8 x 10, . . . . .	1.20

Canadian Kodak Co., Limited,

Toronto, Canada

*All Dealers'.*



*Save time—use two printers*

## THE NO. 1 EASTMAN PRINTER

Answers every requirement. Use it for proof printing—use it for small work—use it for breaking in an apprentice. You can always find use for two printers, and this one is thoroughly practical, convenient and economical.

Has automatic switch, lamp adjustments, red light and slide for ground glass. Burns two 60-Watt lamps and takes all negatives up to 5 x 7.

The price, with red lamp, cord and plug to  
fit ordinary electric socket, . . . \$17.50

*f. o. b. Rochester.*

**Canadian Kodak Co., Limited,**

*All Dealers'.*

**Toronto, Canada**

Chemicals have the same bearing on the results you get from sensitive materials as they have in our production of sensitive materials. We use the same care in testing chemicals for your use—for our use. Our interests are identical.

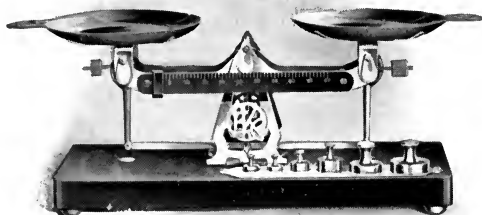
*Use C. K. Co. Tested  
Chemicals.*



Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*



You expect accuracy in a scale—  
you get accuracy with simplicity in

## THE EASTMAN SCALE

Examine the weights—each one is carefully turned and tested—the bearings are hardened steel—a sliding weight on a beam eliminates small, loose weights. It's a thoroughly practical scale, designed especially for your convenience.

### THE PRICE

Eastman Scale . . . . . \$6.00

Canadian Kodak Co., Limited,

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*All Dealers'.*

*Use an*

## IMPROVED MAJESTIC PRINT DRYER



Small initial cost—easy to operate—dependable and efficient—nothing to get out of order. A Majestic Print Dryer will enable you to turn out a big amount of work in a little time. The prints will dry thoroughly, properly shaped, in from fifteen to twenty minutes.

Improved Majestic Print Dryer No. 1, complete, with 2 drying rolls, electric motor, fan, gas heater and stand . . . . .	\$38.00
No. 4, complete, with 4 drying rolls . . . . .	80.00
No. 5, complete, with 5 drying rolls . . . . .	80.00

Canadian Kodak Co., Limited,

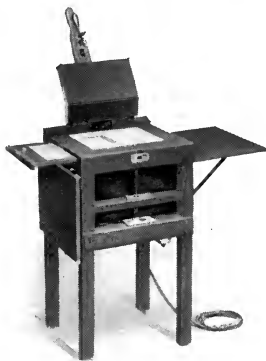
Toronto, Canada.

*All Dealers'.*

## Two Good Printers

### CROWN PRINTER

#### *Sturdy and Practical*



The bank of lights is automatically switched on when the hand operated pressure pad is brought into full contact with paper and negative. A locking device on the lever maintains the pressure during exposure.

Excellent diffusion of illumination and rigid support for vignette or mask is provided by the glass in the sliding frame. The white light may be switched on and pressure pad elevated, permitting adjustment of mask or vignette.

#### *Price without lamps*

No. 1, 8 x 10 . \$34.00    No. 2, 11 x 14 . \$42.00

(f. o. b. Rochester)

### F. & S. PRINTER

#### *Rapid and Efficient*

Foot treadle operation leaves both hands free for adjustment of the negative and paper, increasing the production. The lights may be turned on without lowering the pressure pad, permitting adjustment of vignette or mask.

Full illumination, or any one of the three rows of lights may be switched on separately, according to the density and quality of the negative, providing for dodging while printing.



#### *Price without lamps*

No. 1, 8 x 10 . \$44.00    No. 2, 11 x 14 . \$50.00

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Toronto, Canada.

# Style Versailles

For  $3\frac{1}{2} \times 5$  Oval Prints—Cut two out of 5 x 7 size paper  
Colors—Grey and Brown



**The Versailles**—The Folder that will bring you better prices for the smaller than cabinet size print. You get two out of 5 x 7 size paper. The Stocks are Duplex Grey and Duplex Brown with a rich engraved design on Insert with engraved basket weave finish. The cover has fabric finish with a neat Crest in upper left hand corner brought up in color.

**SAMPLE OF ONE SIZE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS

MADE IN CANADA



Brilliancy, tone, gradation,  
atmosphere—every quality,  
every effect you get in the  
negative is retained in the  
print on

# ARTURA

*The paper without a  
disappointment.*



*All Dealers'.*

CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa, Okla.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

Vol. 11

AUGUST 1919

No. 6

## HOW FILM REGISTERS QUALITY

I was riding with a friend the other day and noticed that his speedometer registered twenty miles per hour when, as a matter of fact, we were going about forty.

"How does that instrument work?" I inquired. "Well," he replied, "it works and it doesn't work. The blamed thing registers 20 m. p. h. when I am really going about 35 or 40, and when I drop down to 20 m. p. h. or less it doesn't register at all, so I have to guess how fast I am really driving."

Such an instrument is unsatisfactory, to say the least, and the same is true in negative making when the material you use fails to register the quality you put in your lightings. I have just heard of a photographer who had approximated the reproductive ability of his plates for so long a time that his objection to

films was that they reproduced his lightings as they really were.

He was using a short-scale, contrasty plate for which he had to flatten out his lightings. His first trial of Portrait Film was not satisfactory because from his low-tone, flat lighting he produced a low-tone, flat negative. "I want snap in my negatives and I don't get it with film," was his complaint to the demonstrator.

Some plate and film negatives were made with his regular method of lighting, but the demonstrator added a considerable amount of carbonate of soda to his regular developer. The results pleased the photographer. "Those negatives have 'pep'," was his way of putting it, but the demonstrator convinced him that they didn't have sufficient quality. They could not show more gradation than was in the short-scale, flat lighting. They did exaggerate contrasts, but nothing more.

## ELON

*Your dealer has it in stock.*

"Now," the demonstrator remarked, "let's make some real strong, brilliant, long-scale lightings that will give you negatives of real quality—negatives that will give you prints with roundness and brilliancy and gradation. You must have quality in the lighting before you *can* reproduce it in the negative. You must have the sensitive material that *will* reproduce it in the negative and the paper that will reproduce the negative qualities in the print." The demonstrator knew film quality and wanted to prove his contention.

The lightings were made, the negatives made and the photographer chose film. His plate did not have sufficient reproductive quality to photograph the things he saw as he saw them. He had camouflaged his lightings to favor his plate and he could not get roundness and brilliancy because these depend upon gradation and not contrast.

Film has the necessary long scale of gradation—all the range of tones between highlight and shadow. You can make the contrasts of the lightings as you like them. Film reproduces contrasts as they are.

Needless to say this particular

demonstrator made lightings that not only could not be reproduced on the particular plate the photographer was using, but that could not be reproduced on any plate. And this is one of the greatest film advantages. The fact that home portraiture, difficult commercial work, interiors, etc., are robbed of their terrors by film is not merely a satisfaction to the film user, but points the way to more business and greater profits as well.

The photographer allows much work to slip from his grasp because he is unfamiliar with the conditions that may be encountered, and fears failure. The film user is like the school boy who learned by accident that he could fight. He was so confident of his ability that he wanted to whip the whole school. When you know what film will do you immediately want to try the most difficult things, and in doing so your scope of work grows larger, your ability becomes greater, and the quality and freshness and variety of your portraits brings its reward of new business.

Your customers know nothing about the limitations of the material you use. To them halation, blocky highlights, contrasty or flat lightings are meaningless expressions. But, photograph a child in a window, against the light, without showing halation, or let a little sunshine sharpen the contrasts of the picture with-



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa, Okla.*



out destroying the gradation from highlight to shadow—without hopelessly blocking one or the other, and your customers will shout their praise of the wonderful pictures you have made them. They may not know why a picture is good or what makes it good, but they *do* know when it is good.

Film quality is a very definite thing—a thing *you* can see and understand once you have used film. Because it does give truthful and flawless reproductions of the most difficult lightings, its broadening influence on your work will be felt just as it has been felt by thousands of other film users.



*A Government photographer of construction work says: "Portrait, Commercial and Commercial Ortho Films were used for every possible kind of work. Portraits of officers, construction photographs of progress and the copying of tracings and blue prints under conditions that never existed in any studio. They were a decided success.*

*"I can truthfully say that they have proved to be one of the greatest advances in modern photography."*



## THE MAN WHO MADE THE PICTURES

We have heard a great deal about Russia during the recent war and have come to have a fair general idea of that great country, its important cities and unpronounceable names. It is interesting then to learn that a prominent Oklahoma photographer, Mr. J. L. Rivkin, is a native of Russia, having been born at Kiev, the capital of the Ukraine, through which flows the river Dnieper.

Mr. Rivkin came to America, the land of promise and opportunity, something over twenty years ago and went direct to Chicago where he received instant employment as a retoucher with Mr. Morrison.

He had learned this branch of photographic work in his native land, having been apprenticed to the leading photographer of Kiev for a period of three years. This meant three years of work for which he was to receive his "keep" but no wages. At the end of a year, however, he had proved so apt that his master voluntarily began paying him a small wage and with this he began to study art in one of the art academies of the capital.

After working for Mr. Morrison for a time, young Rivkin resumed his studies at the Chicago Art Institute where he graduated some years later. Drifting



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*By J. L. Rivkin  
Tulsa, Okla.*



further west he was employed in Kansas City, later on acquired an interest in the Tulsa, Okla., studio with F. de Gueldre and finally became its sole owner.

Mr. Rivkin has the patronage of a discriminating class of people, uses Portrait Film exclusively and—well, we will let him tell his own story. He says: "Prior to coming to Tulsa I had always used glass plates, but finding that my partner had been using Portrait Films for several years with excellent results I decided that as he was a thoroughly capable man and had been what you call 'through the mill' he knew what was best for our business success. So I decided to grasp the opportunity of learning the definite peculiarities of film so that I might improve my work."

"To overcome the many serious obstacles encountered in home portraiture, of which I do considerable, such as shooting into a straight window light, as you designate it, white draperies against dark wall colors or heavy silken and satin draperies, I found Portrait Film indispensable. In the matter of gradation, of speed

and of almost snap-shooting of babies they are all that one can desire."

"You know, of course, that I work with a straight up and down west light and in the afternoon it is very difficult at times, but Portrait Films are so wonderfully plastic—so accommodating I might say—that I have no trouble with those sudden jumpy contrasts which to the eye appear forbidding. Of course a contrasty light will be contrasty in plate or film, but there is this difference; in the glass plate the shadows would be clear glass or the highlights chalky, while in the film there generally is, in spite of bad handling, something in both highlights and shadows."

"I might add that I use Artura paper which enables me to get all I see in the film, so you see I believe thoroughly in these two products. The other day I accidentally dropped an 11 x 14 film and involuntarily I shuddered, forgetting for the instant that no harm would come. How happy I was afterward can easily be imagined. It was an expensive order too—they always are."

Our illustrations are from the regular run of Mr. Rivkin's work—excellent work of a remarkably uniform quality, which we regret to say can never be more than approximated by the halftone process and printers' ink.

## ELON

*We test it—we know it's right.*

*At your dealers'.*



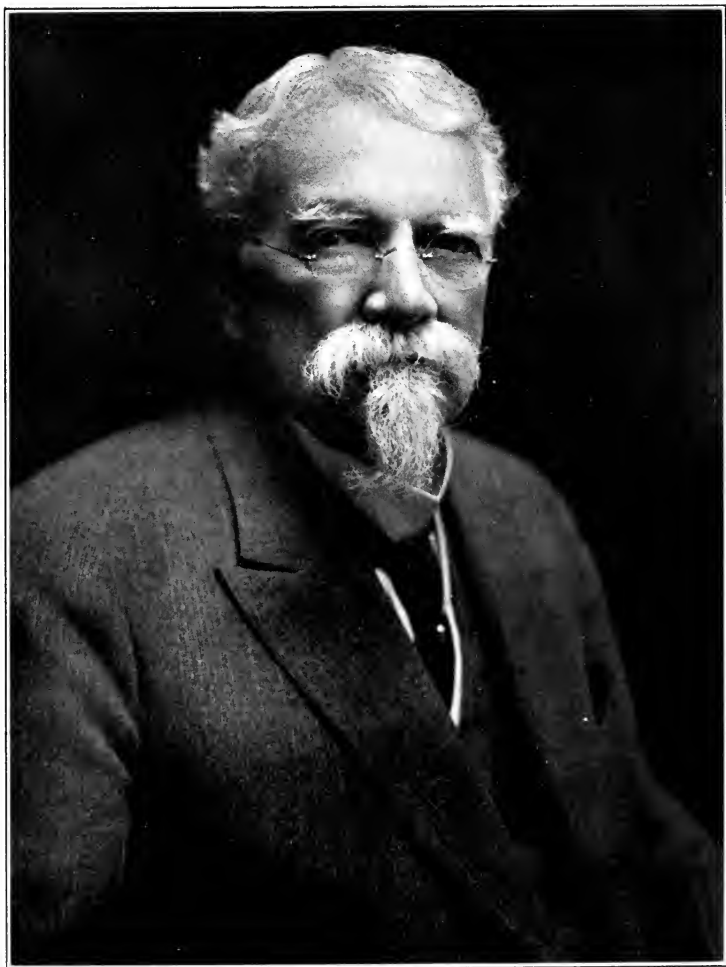




PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rickin  
Tulsa, Okla.*





HENRY ALVAH STRONG

## HENRY A. STRONG

Henry A. Strong, for more than a quarter of a century the president of the Eastman Kodak Co. of New York, died at the family residence in this city on July 26th, aged 81 years.

Mr. Strong had been a successful manufacturer of whips for many years as senior partner of the firm of Strong & Woodbury, when he became interested in the photographic business in 1881. George Eastman was at that time manufacturing dry plates and it was Mr. Strong who had the vision and the nerve to back the then small enterprise with a few thousand dollars. The business was at first conducted as a co-partnership under the firm name of Strong & Eastman, but its rapid growth demanded larger resources and it was but a short time before it was incorporated and additional capital interested.

Mr. Strong sold out his interest in the whip business in the year 1895 when he took an active interest in the photographic business which had then become the Eastman Kodak Company. In 1904 he retired from close association with its affairs, but remained on the board of directors as president. His business suc-

cess was known, of course, to the world—but it was in Rochester, and particularly among those who were closely associated with him, that he was most appreciated. He had not merely those qualities of uprightness and integrity that gave him the respect of business men, but a largeness of heart—and a happy way of showing it—that endeared him to those who worked with and for him.

He was not merely generous in a big way, a liberal giver to the charities of his home city, but he was thoughtful in the little things. He had the happy faculty of carrying with him an atmosphere of good cheer; a hard worker, until his later years, there was always time for a pleasant word of greeting, a winning smile, a merry quip or jest. And these he passed along, without favoritism, to the office boy as freely as to a fellow director. It was all spontaneous, the simple, unaffected evidence of his goodness of heart.

Photography owes much to Henry A. Strong, for he it was who first had faith to put money into the business that Mr. Eastman was developing. Rochester owes much to him, not alone for his backing what is now its greatest industry, but for his charities and for his good citizenship.

## PREVENTION OF BLISTERS

Present day practice is more favorable towards preventive than to remedial measures and the prevention of any trouble is safer, more satisfactory and in the end much cheaper than the application of a remedy after the trouble has occurred.

It is quite true that in many uses of chemicals it is difficult to anticipate trouble but in photography there are such simple rules to follow and so much practical information at hand that there is little excuse for trouble if simple preventive measures are used.

Blisters may be produced on any gelatine paper if the gelatine is abused and when you think of the treatment the gelatine receives you can readily see that it is under a constant strain from the time it goes into the developer until it comes out of the final wash water.

Immediately a print is placed in the developer the gelatine begins to swell as it fills with water and this swelling is increased by the alkali in the solution and by heat. The developer should not be too hot and while it must contain alkali, there should not be too much.

These precautions should be observed, not because prints are likely to blister in the developer

but because such precautions will help to prevent blisters further along.

If prints do contain an excessive amount of alkali and are carried from a warm developer into a strongly acid short stop solution or fixing bath, there is likely to be trouble at once. The action of the acid on the alkali in the gelatine forms a gas and immediately there are thousands of miniature volcanic eruptions on the surface of the print.

Normally, the pores of the gelatine are open, the gas blows off and no harm is done. But if an excess of alkali and warm developer has softened the gelatine, the pores or small canals running through it have been made smaller by the swelling mass—the vents have been closed and a blister forms.

Rinsing after developing removes a considerable amount of the alkali in the gelatine, reduces the amount of gas formed and not only helps to prevent blisters but prevents the fixing bath from becoming alkaline.

The blisters we have mentioned are not air bells but gas bells. Correctly speaking an air bell is caused by dissolved air in the water and this condition is encountered when the water used has been under high pressure.

Heat such water and you will see the air expelled and the bubbles form on the side of the vessel. Used in a developer, the



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa, Okla.*



aerated water penetrates the gelatine and if the solution becomes warmer the air is either expelled or the soft gelatine is blown up into an air bell. The only safe way to use such water is to draw it in a barrel and allow it to stand over night before using. This allows the air to escape.

So far as we have gone the preventive measures are simple but there is one thing left which is probably the most frequent cause of blisters—worn out fixing baths. Use fresh fixing baths, make them properly from good chemicals and don't overwork them. It must be remembered that either acid or alkali will soften gelatine and it is the alum which has the hardening action. A worn out acid fixing bath will more likely soften gelatine than harden it and the real strain on the gelatine comes when the print leaves the fixing bath and goes into the wash water.

This may seem strange but it is true. The gelatine is filled with hypo in solution and this solution is of high concentration while the wash water, free of chemicals, is of low concentration. There is an equalizing force which causes the water to rush into the gelatine faster than the hypo can diffuse out and as this force is greater than the resisting power of soft gelatine, if there is a weak spot in the gelatine caused by softening or swell-

## ELON

*Will give you better results.  
Your dealer has it in stock—  
the price is right.*

ing, that spot will develop a blister filled with water.

The means of prevention is a fresh fixing bath which will harden the gelatine emulsion uniformly. Don't attempt to renew a fixing bath. It can't be done practically. A bath that is ready to be discarded is contaminated by developing chemicals and some of its own properties have ceased to function. You can't build it up. Use a fresh bath.

There is one other general precaution to be observed. Keep the temperature of solutions as nearly uniform as possible. If the developer is 70° F. don't have the hypo 50° F. and the water 80° F. A sudden change from warm to cold, or cold to warm solutions will often produce blisters.

If prints are inclined to blister during toning the remedy is to treat the prints with a 3% solution of formalin before toning. If prints have not been properly hardened during developing and fixing, blisters may be caused by the hypo alum bath being too hot, or if they are re-developed, by an acid bleaching bath or an ex-

cessively strong sulphiding bath.

The fact that the great majority of printers are never troubled with blistered prints leads one to believe that only ordinary care is necessary to prevent the trouble and in this case it is certain that prevention is always the safest measure, as there is no really satisfactory cure. If a blistered print must be saved it may be immersed in equal parts of water and alcohol, followed by a bath of alcohol.



## ELON

(Monomethyl Paramidophenol  
Sulphate)

*It's one of the Tested  
Chemicals—*

*We test it—*

*We use it—*

*We recommend it be-  
cause we know it's  
right for your use.*

*Our interests are identical.*



## BUILDING UP A QUALITY BUSINESS

Every photographer knows that the best profits are to be secured from the highest grade of work. He knows how valuable the high grade business is, but he does not always know how to change over from the grade of work he is producing to the more profitable work.

A Columbus, Ohio, photographer has a method of doing this in operation in his studio that is worthy of adoption. The method is so simple that any photographer can use it to improve the class of work he is doing. It has had a wonderful effect on the business of the Columbus photographer and if adopted will prove to be a simple "trading up" process that will affect the whole business.

The method followed by this photographer may best be illustrated by showing how it works out with mothers who bring the baby in to have its first photograph taken. The mother informs the receptionist that she brought the baby in to have its photograph taken. After the usual preliminaries, for every mother expects that a certain amount of fuss will be made over *her* baby, the receptionist, instead of bringing out a lot of sample photographs and mounts, shows one or two high class photographs and diplomatically proceeds to



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Kirkin  
Tulsa, Okla.*







PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa, Okla.*



## ELON

*Will give you better results.  
We recommend it—we  
know it's right.*

find out the limit the mother will go for the work.

After learning the amount she is willing to pay for the photographs, the next thing to be decided is the quantity she requires. The natural reply is "a dozen." She thinks of buying photographs in dozens and in no other quantities. She has always thought that is the way they should be purchased. The photographer is responsible for this, of course, for he has made it a custom.

"Do you really need a dozen?" the receptionist asks, much to the mother's astonishment. She follows up the question before the mother has quite recovered by asking, "Wouldn't a few less serve your purpose just as well?"

Sometimes the mother immediately protests that she needs a dozen, but often she appears to consider the question. The receptionist then follows up her questions with a tactful explanation of the reason for the query. "Most people who buy a dozen photographs find that after they have given one to each of their particular friends and relatives and have reserved one

for the home, there are three or four left. Of course, these are apportioned out, but to people who would perhaps be just as well satisfied with a less expensive picture."

Unless the woman is unusually insistent for a dozen, it is suggested that she make out a list of those to whom she would like to give a very fine photograph of the baby. Nearly always the list is made out and halts at seven or eight. The intimation that several pictures are practically wasted where a dozen are ordered, has taken root. She is of course, reminded that she can have more prints made from the same negative at any time she wishes if she finds she needs them.

This usually brings the transaction down to a definite quantity at a definite price. The receptionist then proceeds to show the styles of work that can be had for the money the mother is willing to pay. A selection is made and the customer is pleased with the better work when she receives it. The photographer has done the same volume of business with less work and has a better chance of a duplicate order.

If samples had been shown at first and the customer urged to buy the higher grades of work with the dozen idea in mind, the better sale would have been lost and the customer probably



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa Okla.*



offended. If the customer had bought the higher grade of work under the old fashioned brand of salesmanship, she would always believe she had been coerced into doing so.

The Columbus photographer finds that in practically every case that comes to him, when his method is followed, the sale works out to his advantage. He has built up a higher grade business. He is making more money. His reputation for good work is gaining. What more could a photographer want?

This idea is really not a new one, however, for another method of accomplishing practically the same result is the individual print price idea. In some cases a flat price is placed on one or any number of prints, but more often it is so much for the first three prints and the duplicate price for each additional print.

By this plan you would charge for \$30.00 per dozen work, \$12.00 for the first three prints and \$2.00 each for additional prints. Your scale of prices can be carefully figured out for any number of prints, so that the customer who is willing to spend any given amount can be quickly shown just how many prints of any style he can buy for the amount he wishes to spend, or what the cost of any number of prints will be for any style of work.

In any event, if you know your customer is willing to spend

\$20.00 and wants seven pictures, it is much better policy to sell seven high grade pictures for \$20.00 than to sell a dozen cheaper pictures for \$20.00. When the seven pictures are gone the customer may buy the other five for an extra \$10.00, while if you have sold a dozen where only seven are really needed, the extra five are a reminder of the purchaser's extravagance.

"Buy conservatively" should be your advice to the purchaser if you wish to sell high grade work. Then sell what the customer is willing to buy—not in numbers but in quality—as high grade work as you can afford to make for the number of prints wanted. A few prints of quality at a good price.



*You get better results  
on Film because you re-  
produce what you see, as  
you see it. It is*

### *Film Quality—*

*the quality that makes the  
one time impossible things  
simple.*





PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By J. L. Rivkin  
Tulsa, Okla.*



## SYSTEM IN BUSINESS

An expert accountant called upon us recently to learn if our accounting department could give him any information as to the probable requirements of a number of his photographic clients. Considerable trouble had been experienced in his district in securing proper income tax reports from photographers, and a number of these photographers had appealed to this accountant to devise some business system for their protection which would enable them to make reports that would be satisfactory to the officials of the Revenue Department of the Government.

As the business of the photographer is entirely different from other lines of business and requires special accounting methods it was quite natural for this accountant to seek information from us rather than to blindly attempt to devise a special business method himself.

The methods which our accountants had devised, "System for the Photographic Studio," was shown to him and on looking it over he found it to be exactly the thing his clients required. A system that could be operated by anyone with little waste of time and energy, yet complete enough and simple enough to yield all the information necessary for the purposes required.

When it was learned that this

bookkeeping system was actually on sale at the photographic dealer's store in his town, to whom we referred him, he was at a loss to understand why photographers, a dozen or more of them, in fact, had employed him to do the very thing which had been done for them at no expense whatever.

There was nothing for him to do but recommend the system which had been specially devised for the photographers' use. Possibly he explained its use much as it is explained in the instruction booklet, for he may have felt ashamed to take his fee otherwise.

Aside from the necessity for a clear and concise statement of your business affairs in your Income Tax Reports, however, you need a thorough knowledge of your business that will enable you to know its strong and weak points if you expect it to grow and thrive and pay you the profit it should.

Be a good photographer, take a pride in the work you are doing, but be a good business man as well and take a pride in the efficiency with which your business is conducted. The combination of the two will put more dollars of profit in your pocket.



*Make the negative on  
Eastman Portrait Film*



Buy pictures more often—buy just the number you require. One for each of your friends and one for the family record.

*Additional pictures any time,  
as required.*

## THE ELON STUDIO

Line cut No. 266. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4} \times 6\frac{1}{2}$  to  $14 \times 17$ , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*



# ELON

Proud of its war-time accomplishment—worthy of its pre-war reputation.

We recommend Elon for the richness and brilliancy of the prints it produces.

*We test it—we know it's right.*

## THE PRICE

1 oz. bottle . . . . .	\$ 2.10
¼ lb. bottle . . . . .	8.00
½ lb. bottle . . . . .	15.50
1 lb. bottle . . . . .	30.50

Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

# Eastman Permanent Crystal Pyro

*We test it—we know it's right.*

That's all we need say for its quality. As for results, we might say that Pyro-developed negatives have never been excelled. Possibly you can improve your negatives by using Pyro.

## THE PRICE

1 oz.	-	-	-	-	-	\$ 0.45
$\frac{1}{4}$ lb.	-	-	-	-	-	1.40
$\frac{1}{2}$ lb.	-	-	-	-	-	2.60
1 lb.	-	-	-	-	-	5.00

Canadian Kodak Co., Limited,  
Toronto, Canada

*All Dealers'.*

A permanent fixture



## EASTMAN METAL TRIMMER

No other trimmer equals it in convenience, accuracy or durability. We might ask more for it—we couldn't make it better. You buy it but once—it lasts a lifetime.

It is furnished in three sizes, each with a solid metal enameled bed, ruled with white lines in one-half inch squares.

### THE PRICE

No. 10, 10-inch blade and rule, . .	\$ 9.00
No. 15, 15-inch blade and rule, . .	12.00
No. 20, 20-inch blade and rule, . .	16.00

*Prices f. o. b. Rochester, N. Y.*

**EASTMAN KODAK COMPANY,**

**ROCHESTER, N. Y.**

*All Dealers'.*

# WRATTEN SAFELIGHT LAMPS

Embody the correct lighting principle—soft, indirect light with Safelights that give a definite degree of safety. The former is necessary for comfort, the latter to preserve the fog-free quality of your negatives.

Safelights are made for film or plates of varying degrees of sensitiveness and may be quickly interchanged. The series 2 Safelight is furnished unless otherwise specified.



Wratten Safelight Lamp, No. 1, . . . . .	\$13.50
Do., No. 2, without slide for white light, . . . . .	10.50
Series 1 Safelight, for all plates not color sensitive, 8 x 10, . . . . .	1.75
Series 2 Safelight, for Orthochromatic Film or Plates, 8 x 10, . . . . .	1.75
Series 3 Safelight, for Panchromatic Plates, 8 x 10, . . . . .	1.75

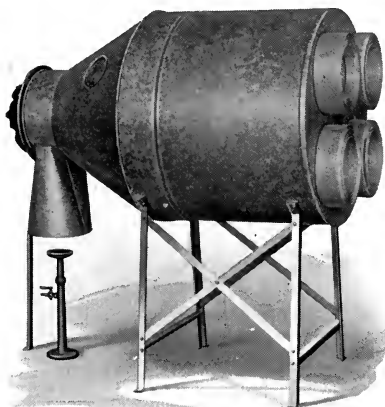
Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

*Dry prints quickly but  
dry them right—use an*

## IMPROVED MAJESTIC PRINT DRYER, No. 4



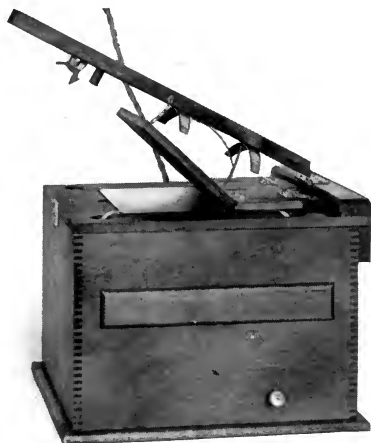
To take the curl out of a print and keep it out it must be bone dry. Fifteen or twenty minutes are required to dry a print right. The Majestic Dryer is easy to operate, dependable and efficient. Its four rolls hold a large number of prints, the rolls are filled quickly and by the time the fourth roll is filled the first is about dry. The initial cost is small—there is nothing to get out of order.

Improved Majestic Print Dryer No. 4, complete with drying rolls, electric motor, fan, gas heater and stand, **\$80.00**

**Canadian Kodak Co., Limited,**

**Toronto, Canada.**

*All Dealers'.*



*Save time—use two printers*

## THE NO. 1 EASTMAN PRINTER

Answers every requirement. Use it for proof printing—use it for small work—use it for breaking in an apprentice. You can always find use for two printers, and this one is thoroughly practical, convenient and economical.

Has automatic switch, lamp adjustments, red light and slide for ground glass. Burns two 60-Watt lamps and takes all negatives up to 5 x 7.

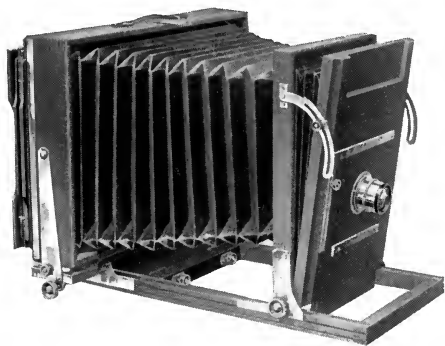
The price, with red lamp, cord and plug to  
fit ordinary electric socket, . . . \$17.50

*(f. o. b. Rochester, N. Y.)*

**EASTMAN KODAK COMPANY,**

*All Dealers'.*

**ROCHESTER, N. Y.**



## F. & S. Banquet Camera

Designed for making large indoor groups, the F. & S. Banquet Camera is provided with special adjustments for overcoming the difficulties frequently encountered when working in cramped positions.

With the camera back in vertical position, to preserve rectilinear lines of the interior, the lens may be tilted and lowered the required amount to include the greatest number of persons in the picture.

The F. & S. Banquet Camera is made in two sizes—7 x 17 inches and 12 x 20 inches—especially intended for interior work, but equally suitable for groups out of doors, landscapes and architectural subjects.

Eastman Portrait Film or plates, as you choose, may be used.

*Ask your dealer for Eastman Professional Catalog.*

**FOLMER & SCHWING DEPARTMENT**

**EASTMAN KODAK CO.**

**ROCHESTER, N. Y.**

# Style Versailles

For  $3\frac{1}{2} \times 5$  Oval Prints—Cut two out of  $5 \times 7$  size paper  
Colors—Grey and Brown



**The Versailles**—The Folder that will bring you better prices for the smaller than cabinet size print. You get two out of  $5 \times 7$  size paper. The Stocks are Duplex Grey and Duplex Brown with a rich engraved design on Insert with engraved basket weave finish. The cover has fabric finish with a neat Crest in upper left hand corner brought up in color.

**SAMPLE OF ONE SIZE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS

MADE IN CANADA



Prints by projection on

# ARTURA CARBON BLACK

cost less, sell for as much and  
have all the quality of contact  
prints from large negatives.



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

*All Dealers'.*



EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE · THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

SEPTEMBER 1919

No. 7

## 11,500,000 CIRCULATION WORKING FOR YOU

We have resumed the "*There's a Photographer in Your Town*" advertising and are going at it 11,500,000 strong the first month.

You have had a hard time filling orders—we have had a hard time filling orders, so we have only touched lightly on this advertising during the war. Just enough to keep the fact in mind that the soldier, as well as the home folks, needed pictures to keep him happy.

Now that business is good, we want to keep it good. If nothing more we want to keep it running on a line as nearly on a level with the peak as possible. The photographer's business used to go up and down with regularity and the peak was always reached at Christmas time. It was a quick jump from a slack business to a rush and it made the studio machine snort and strain to get

the work out and keep everyone happy. But when you are busy and keep right on being busy you don't notice it so much when the extra work piles up a bit. You are in trim and you turn it out much more easily.

Business is good, so we are going to make a big advertising drive to keep it good and incidentally to get the Christmas business coming a little earlier than in previous years. That in itself will help you a lot. Photographers have been doing more of this kind of advertising of late years and the ones who have kept at it consistently have had good results.

You can't get Christmas business coming in September and October, however, so we are suggesting the exchange of photographs between friends in the advertising for these months.

We are beginning the campaign in the October magazines which are issued about the middle of September and are using

the copy on page 5. This may seem to you a very skimpy use of words, but if you will study those four words—write the page full of words, if you like, and then boil it down, you will find you have not made a stronger argument for photographs at this season.

The vacation season is just ending and the schools are just opening and that is a time when friendships are made. What will do more towards keeping alive those friendships than a photograph? More words than are necessary to convey an idea are detrimental to an advertisement. If the idea can be expressed in a few words it will be read, provided it is displayed in a way that will attract attention, and we think those four words on a magazine page will attract any reader's attention.

The extent of this advertising is the next important thing. This copy will appear as a full page in the October *Saturday Evening Post*, *Vogue*, *Atlantic Monthly*, *Century*, *Harpers*, *Review of Reviews*, *Scribner's*, *World's Work*, *Munsey's*, *Cosmopolitan*, *Everybody's*; as one-quarter page in *Ladies' Home Journal*, *Pictorial Review*, *Woman's Home Companion*, *Delineator*, *Designer*, *Woman's Magazine*, and a 224 line space in *Life*.

The same ad will appear as a full page in the following widely read fiction magazines: *Argosy*,

*All Story*, *Ainslee's*, *Popular Magazine*, *Short Story Magazine*, *Adventure*, *People's Magazine*, *Detective Stories*, *Smith's* and *Top Notch*.

To get results in big advertising you must get big circulation with the least possible duplication, and in this particular advertising it is necessary to reach all classes because all classes can and should buy photographs.

The combined circulation of the magazines in which this advertisement will have excellent display is approximately eleven million, five hundred thousand (11,500,000) copies.

But this is not all. There will be another big drive in the November magazines and at that time we will use Christmas copy and just beneath the line "*There's a Photographer in Your Town*" we will add "And he's not as busy now as he will be in December."

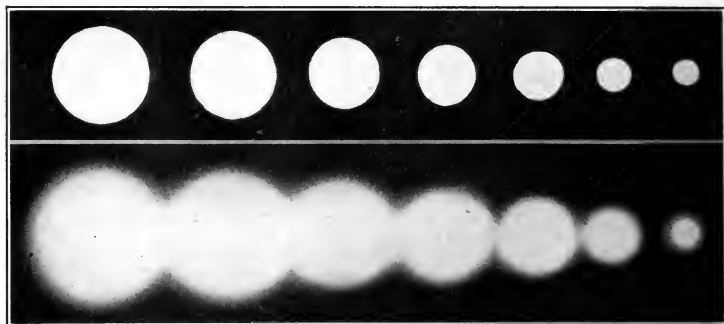
The October magazines appear about the middle of September and the November magazines about the middle of October, so the Christmas advertising will appear at the time it will do your business the most good.

Obviously, you should follow up this publicity in your local papers if you would reap the greatest benefit. When people are thinking of photographs, make them think photographs again, and connect your studio with the thought.

Between friends—  
a photograph.

*There's a photographer in your town.*

Eastman Kodak Company, Rochester, N. Y.



## A FILM ADVANTAGE ILLUSTRATED

The illustrations shown above are very interesting when it is known exactly what they are and what they mean. A series of holes of gradually increasing size were cut in a piece of black paper and this piece of paper was placed in front of an illuminator and photographed, using Portrait Film and a glass plate of approximately the same speed. The film and plate were given exactly the same exposure and the same development at the same temperature.

The upper illustration is the Portrait Film result and you can be sure it is exactly as the film saw and recorded those holes in the paper. You can be equally sure that the lower picture represents what the plate saw and a lot more than it saw that it could not help recording.

Notice the spaces between the white spots in the upper illus-

tration—then look for spaces in the lower one and you have a very good comparison between film and plate results in photographing difficult things—not holes in black paper, for that is merely an example you can plainly see, but there are thousands of negatives made every day in which the halation is just as bad or worse than that shown in our lower illustration, when plates are used.

In a great many forms of commercial work as well as in portraiture, much of the loss of quality in plate results is due to halation that can not be seen as we show it in our illustration, yet it is exactly the same thing.

Suppose that instead of the holes in the black paper, you are photographing a piece of white material such as brocaded satin, that is brilliantly lighted. The subject is a bride and you want to retain all the detail in the beautiful white gown she wears. You see detail and if you examine



EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*



the material under a glass you will see that there are shadows in the depressions between the threads of the fabric that give relief to the highlights which are on top of the threads.

These very fine shadows enable us to see texture in a fabric. In the same way we see texture in flesh, but the glass plate does not always record it—not when the lighting is strong, and lightings must be strong to secure brilliancy and roundness.

If you make a flat lighting to overcome this trouble of halation it doesn't matter whether you use a contrasty plate or a contrasty paper, you get nothing more than more contrast in the tones of your lighting. The result is unsatisfactory and untrue. Your portrait does not have quality because the scale of gradation of the print is no longer than the scale of the lighting.

On the other hand, if you make your lighting strong and brilliant with a scale of gradation twice as long as you make for your plate, Portrait Film will register every step from highlight to shadow, and because the destructive influence of halation is not apparent in the film negative you will find that you have detail both in highlights and shadows and that you can reproduce that detail in an Artura print.

The example we have illustrated does not do full justice to

film because the holes are too far apart. If they were very small and very close together—nearer to one another than the thickness of a glass plate, film would still reproduce them perfectly, but the halation in the plate negative would spread so far as to overlap the spaces between the holes and show little more than a white mass.

Our illustration is reduced one-third but it shows how destructive the spreading of light can be. And when highlights and shadows are so small that we can only see them as a mass and can only say they are responsible for our seeing detail in an object, it is easily seen how halation can so completely block up a highlight that no detail whatever can be seen.

The great advantage in the use of Portrait Film is that in the handling of difficult lightings its superiority over glass plates is immediately demonstrated. Portrait Film is a real advantage because it makes difficult things easy. The difficult things are those unusual lightings that you have been unable to make because of the shortcomings of plates.

Portrait Film removes the greatest hindrance to successful advancement. It enables you to get out of the rut, to do things out of the ordinary—the things that mark you as a wide awake progressive photographer.





EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*





## HOW WOULD YOU MAKE THIS PHOTOGRAPH?

The unusual things encountered in photographic work are often the most interesting as well as the most difficult, but as each new problem is mastered the store of the photographer's knowledge and experience is increased.

The problem of photographing a luminous clock dial was put up to our Laboratory and the methods by which the photograph, shown above, was made will be interesting.

The object of the photograph was to determine the visual effect of the luminous figures and the result could not very well have been obtained by any other method than photography.

The dials were placed in the front frame of an ordinary copy-

ing camera. A square of cardboard was made to fit the opening. A circular opening was made for the dial which was fitted in closely so that no light could enter. The cardboard containing the dial was placed in the kit regularly used for holding the negative when making lantern slides.

A seven inch lens was used in the central compartment of the camera and as the light from the dial was too weak for satisfactory focusing a glass plate with lines on which to focus was first placed in the kit. The image was focused, the glass plate removed and the board holding the dial was inserted.

Care must be taken that the face of the dial comes in the same plane as the plate used for focusing.

A black cloth was placed over the front of the camera to exclude all light from without. The holder, containing a Seed 30 plate, was placed in position, the slide drawn and a black cloth placed over the back of the camera.

These precautions are advisable as the exposure required with a fast plate and open lens was 72 hours. The plate was developed in strong contrast developer and the prints made direct, no intensifying or retouching being necessary.





EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios*  
*Toledo, Ohio*



## THE MAN WHO MADE THE PICTURES

One could not imagine a more harmoniously working business organization than that of Mr. C. L. Lewis of Toledo, Ohio. We might say that this is due to the excellent business management of Mr. Lewis, and we would be right, but at the same time we would not convey a correct idea of the condition that creates the harmony we believe has largely contributed to the success of the Lewis Studio.

Mr. Lewis not only manages but has that faculty of surrounding himself with workmen who are made to feel they are a part of the organization, and who require the minimum of management. It is an organization in which the human element is a great factor and in which every one has his or her part and can count upon ample credit for work that is well done.

The Lewis Studio is also a business institution in which Toledo's citizens have a pride, and here again we come back to the man who has taken a part in civic affairs, who has associated himself with those organizations of business men that have the welfare of the community at heart.

We might add that Mr. Lewis has also been a conscientious and an earnest worker in all move-

ments which have had for their object the betterment of the profession, and is especially well fitted to fill the high office with which the National Association has honored him.

The Lewis Studio has always had an excellent portrait business and some two years ago added to this a department devoted to home portraiture which became an immediate success. Mr. Lewis was fortunate in the development of this work in having secured the services of Wm. Armstrong, whose ability and pleasing personality are well known to a large part of the profession. He is not only an artist to his finger tips but understands the psychology of the child mind and is very successful in the photography of children.

The Lewis Studio is as complete as the studio organization. One convenient feature is its two skylight rooms, one of which is used for grown-ups and one for children. It takes time and patience to photograph children while a man is usually in a hurry. There are plenty of modern work rooms and a retail Art Shop which fits in very well with the photographic business.

We have selected the home portrait work of the Lewis Studio because in our opinion it is work in which every photographer is interested. The few pictures we can publish in one issue of



EASTMAN  
PORTRAIT FILM  
NEGATIVE,  
ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*

STUDIO LIGHT can do no more than give a fair idea of this branch of work, but they offer many suggestions that will be of real value to the home portrait worker. And that they may offer some helpful suggestion is the wish Mr. Lewis expressed in granting permission for their publication.



*We recommend Elon for the richness and brilliancy of the results it produces.*

*It is an economical developer because of its vigorous and lasting qualities and because every grain of it produces developing energy.*

*Elon is one of the Tested Chemicals.*

*We know it's right.*

*Your dealer has it in stock.*



## THE NATIONAL CONVENTION

It seemed like Old Home Week, getting back to a National Convention after having had to forego the pleasure for a couple of years, and judging by the expressions of those who attended the Cedar Point convention, most of them felt the same way. There is no denying it was a good convention, and that everyone had a good time. The photographer who did not also take home a few good ideas has only himself to blame. They were there, in the exhibits, in the lectures, and in the demonstrations.

It was a good convention, and the arrangement was a very convenient one. The Main Hall and Exhibition Hall were connected with the hotel in such a way that had the weather been anything but ideal it would have caused no inconvenience. The Demonstration Hall was on the second floor and was of ample size. The picture exhibit was beneath this and was exceptionally well lighted. Connected with this by a passageway was the Main Hall, a portion of which was used for the business meetings, the balance being occupied by the manufacturers and dealers.

The Eastman Exhibit was at the left of the main entrance, and while the space was limited, an excellent showing of Artura prints and Portrait Film nega-



EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*



tives was made. The Artura contact prints were shown in large albums, while the Carbon Black enlargements were in folders. Portrait Film negatives and prints from same were shown in special folders, and those who had not yet taken up the use of film had ample opportunity, not only to see film results but to have the opinions of numbers of photographers who are using films, and to see them used by a majority of those photographers who were on the program for demonstrations.

A Dry Mounting Press was installed in the Eastman exhibit, with a demonstrator in charge to show its working. There have been many inquiries regarding the method we use in mounting prints for our various exhibits, and the demonstrator was kept busy explaining the principle of dry mounting and demonstrating its many advantages.

There was also an expert accountant from our Auditing Department to help those who had problems of bookkeeping or business system to solve and who might wish advice.

The usual number of demonstrators was on hand, and, as film was the big thing—the most talked about thing of the convention, those who had not yet broken away from plates were most interested in the film exhibit and the equipment shown for handling Portrait Film in the

studio. There was no need of talking film to film users. They did most of the talking themselves, and there were none of them who were not enthusiastic. You heard them on every side, comparing notes, eager to take advice or give it, and always with a good word for film and film results.

The demonstrations were good, the lectures were good, the picture exhibits were good, and special interest centered in the group of remarkably fine complimentary exhibits by Goldensky, MacDonald, Hoyt, Clark and Hutchinson.

Everyone enjoyed the bathing all week long, the Grand Ball on Tuesday evening was a decided success, the novelties distributed to the dancers making the great ball room a mass of brilliant color. The motion pictures of the war, shown on the beach with the lecture by Capt. Ed. Cooper, while not on the program as an outdoor attraction, proved none the less enjoyable, and the Banquet topped off the week, as a good banquet should. There was plenty to eat, plenty of noise, and everything indicated that those present were thoroughly enjoying themselves.

The retiring board may well be proud of the success of the first post-war convention. The officers elected for the coming year were:

Chas. L. Lewis, Toledo, Ohio, President; Howard D. Beach,





EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*



Buffalo, N. Y., 1st Vice-President; G. L. Hostetler, Des Moines, Iowa, 2nd Vice-President; Mamie Gerhard, St. Louis, Mo., 3rd Vice-President; A. H. Diehl, Sewickley, Pa., Treasurer, the Secretary to be appointed and the next place of meeting to be selected by the board.



## VALUE OF GOOD APPEARANCE

The old maxim: "Appearances don't count," should be taken by photographers with the proverbial grain of salt. As a matter of fact, in photography appearances count for a great deal.

You know perfectly well that you could set a white and flawless diamond in a common brass setting, and the average person would look upon it as paste and pass it by. The diamond experts, of course, would at once perceive its true value—but diamond experts are not common.

It is just the same in your business. You may make fine pictures; the posing, lighting, printing and everything may be first-class, but if you mount your pictures on cheap, inappropriate mounts, away goes their value in the eyes of ninety per cent. of your customers. True enough the art critic or picture expert would notice their merits. The vast majority of your customers,

however, are not art critics or picture experts, and if you want them to appreciate your good work at its full value, you must make it *appear* as good work when you present it to them. You must dress your pictures to correspond with your ideas of their value, because the money-spending public will value the quality of your picture-gems by their settings.

Take one of your best prints, put it on a cheap, common-looking mount, and its market value becomes nothing more than the value suggested by the mount. Put the same print, however, on an up-to-date artistic mount, or in a dainty appropriate folder, and its value at once rises to whatever your customers are prepared to pay for high-class work. The difference in the cost of production is very small, but the difference in the net profit is enormous.

There is no part of your work where appearances count so much as in the mounting of your pictures. For this reason you should select your mounts with the greatest care and discrimination. If the man down the street fills his window or show case with a new line of mounts, don't copy his particular style, but try to go one better in good taste and refinement.

Your dealers have their fall line of mounts and folders and you will find there settings for your pictures that will raise the



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Toledo, Ohio



value of your work in the eyes of the public. Make a display of these new mounts and folders, and the stimulating effect it will have upon your business will be an agreeable surprise to you.

Don't be misled; appearances do count.



## PRACTICAL SUGGESTIONS

It becomes necessary sometimes for the photographer to fill up tiny holes or cracks in the woodwork of his camera, and to do this he is often at a loss to find a substance that will do the work thoroughly, and dry with a matt, black surface. A most useful cement that will harden like stone can be made in the following way: pour a little of LePage's glue into a saucer and mix it with some fine plaster of paris and a little lamp black until it forms a thick paste. Use a small knife to fill up the cracks or holes in the wood and scrape away all the superfluous paste before it gets time to harden. In a few days it will be as hard as a rock.

Architects and engineers, who use blue-print copies of their plans and drawings, are very grateful when prints are supplied to them in a waterproof condition. They are often compelled to refer to drawings in the open air, and in all kinds of

weather, with the result that the prints very soon get into a dilapidated condition. A good method of waterproofing blue prints is to saturate them with melted paraffin wax. The most convenient way of doing this is to soak in the melted wax a number of pieces of absorbent cloth, a foot or more square, and when cool spread some of these pieces of cloth on the table and lay the print on top of them, and then again on top of the print lay some more pieces of cloth. When this is done, it is only necessary to iron them with a hot iron. The paper will immediately absorb the paraffin until saturated.



*You can secure any good result on a film that you can secure on a glass plate. The results you secure on film that you cannot secure on plates, however, are the results that are responsible for the constantly growing number of Portrait Film enthusiasts.*





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*By C. L. Lewis Studios  
Toledo, Ohio*





EASTMAN PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By C. L. Lewis Studios  
Toledo, Ohio*





How many people  
can you think of right  
now who would like  
to have your photo-  
graph, and how long  
since that last one  
was made?

*Make an appointment  
to-day*

## THE ELON STUDIO

Line cut No. 267. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4} \times 6\frac{1}{2}$  to  $14 \times 17$ , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*



# ELON

## BETTER THAN EVER

Elon is unsurpassed for the richness and brilliancy of the prints it produces. It is economical because every grain of it creates developing energy. Your dealer can supply you.

*We test it—we know it's right.*

### THE PRICE

1 oz. bottle . . . . .	\$ 2.10
$\frac{1}{4}$ lb. bottle . . . . .	8.00
$\frac{1}{2}$ lb. bottle . . . . .	15.50
1 lb. bottle . . . . .	30.00

Canadian Kodak Co., Limited,  
Toronto, Canada.

# Eastman Permanent Crystal Pyro

*We test it—we know it's right.*

That's all we need say for its quality. As for results, we might say that Pyro-developed negatives have never been excelled. Possibly you can improve your negatives by using Pyro.

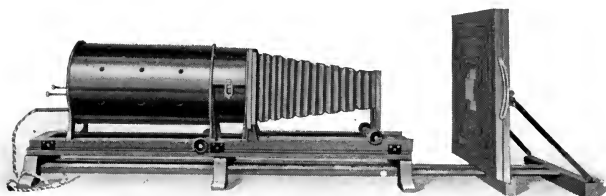
## THE PRICE

1 oz.	-	-	-	-	-	\$ 0.42
$\frac{1}{4}$ lb.	-	-	-	-	-	1.25
$\frac{1}{2}$ lb.	-	-	-	-	-	2.35
1 lb.	-	-	-	-	-	4.50

Canadian Kodak Co., Limited,  
Toronto, Canada

*All Dealers'.*

*There's a good, clean profit in enlargements  
when you make them.*



## THE EASTMAN ENLARGING OUTFIT

Is a substantial, practical and convenient piece of studio work-room equipment. It accommodates 5 x 7 and smaller negatives, has adjustable negative holder, 10-inch condensers and 500-watt lamp.

The special easel has kits for 16 x 20 and all of the standard smaller sizes as well as a special attachment for making lantern slides.

Eastman Enlarging Outfit, complete  
without lens . . . . . \$150.00

Canadian Kodak Co., Limited,  
Toronto, Canada.

*All Dealers'.*

# WRATTEN SAFELIGHT LAMPS

Embody the correct lighting principle—soft, indirect light with Safelights that give a definite degree of safety. The former is necessary for comfort, the latter to preserve the fog-free quality of your negatives.

Safelights are made for film or plates of varying degrees of sensitiveness and may be quickly interchanged. The series 2 Safelight is furnished unless otherwise specified.



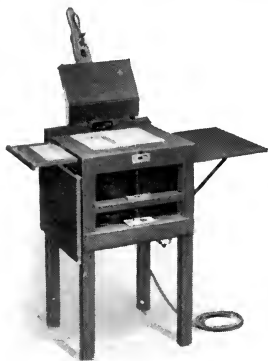
Wratten Safelight Lamp, No. 1, . . . . .	\$13.50
Do., No. 2, without slide for white light, . . . . .	10.50
Series 1 Safelight, for all plates not color sensitive, 8 x 10, . . . . .	1.75
Series 2 Safelight, for Orthochromatic Film or Plates, 8 x 10, . . . . .	1.75
Series 3 Safelight, for Panchromatic Plates, 8 x 10, . . . . .	1.75

Canadian Kodak Co., Limited,

Toronto, Canada.

*All Dealers'.*

## Two Good Printers



### CROWN PRINTER

#### *Sturdy and Practical*

The bank of lights is automatically switched on when the hand operated pressure pad is brought into full contact with paper and negative. A locking device on the lever maintains the pressure during exposure.

Excellent diffusion of illumination and rigid support for vignette or mask is provided by the glass in the sliding frame. The white light may be switched on and pressure pad elevated, permitting adjustment of mask or vignette.

#### *Price without lamps*

No. 1, 8 x 10 . \$34.00    No. 2, 11 x 14 . \$42.00

(f. o. b. Rochester)

### F. & S. PRINTER

#### *Rapid and Efficient*

Foot treadle operation leaves both hands free for adjustment of the negative and paper, increasing the production. The lights may be turned on without lowering the pressure pad, permitting adjustment of vignette or mask.

Full illumination, or any one of the three rows of lights may be switched on separately, according to the density and quality of the negative, providing for dodging while printing.

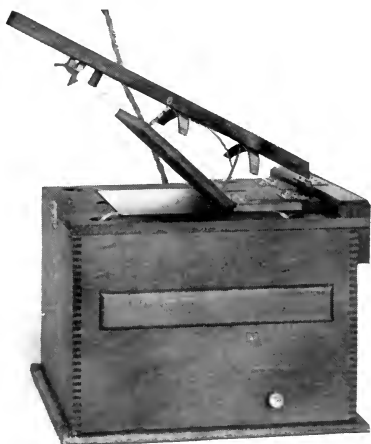


#### *Price without lamps*

No. 1, 8 x 10 . \$44.00    No. 2, 11 x 14 . \$50.00

(f. o. b. Rochester)

Canadian Kodak Co., Limited,  
Toronto, Canada.



*Save time—use two printers*

## THE NO. 1 EASTMAN PRINTER

Answers every requirement. Use it for proof printing—use it for small work—use it for breaking in an apprentice. You can always find use for two printers, and this one is thoroughly practical, convenient and economical.

Has automatic switch, lamp adjustments, red light and slide for ground glass. Burns two 60-Watt lamps and takes all negatives up to 5 x 7.

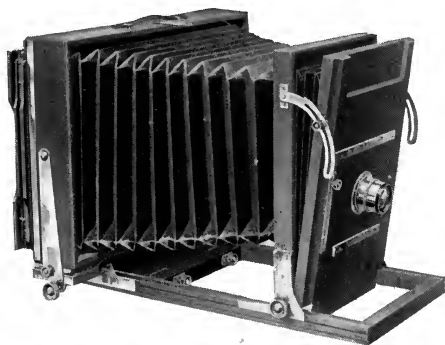
The price, with red lamp, cord and plug to  
fit ordinary electric socket, . . . \$17.50

*f. o. b. Rochester.*

Canadian Kodak Co., Limited,

*All Dealers'.*

Toronto, Canada



## F. & S. Banquet Camera

Designed for making large indoor groups, the F. & S. Banquet Camera is provided with special adjustments for overcoming the difficulties frequently encountered when working in cramped positions.

With the camera back in vertical position, to preserve rectilinear lines of the interior, the lens may be tilted and lowered the required amount to include the greatest number of persons in the picture.

The F. & S. Banquet Camera is made in two sizes—7 x 17 inches and 12 x 20 inches—especially intended for interior work, but equally suitable for groups out of doors, landscapes and architectural subjects.

Eastman Portrait Film or plates, as you choose, may be used.

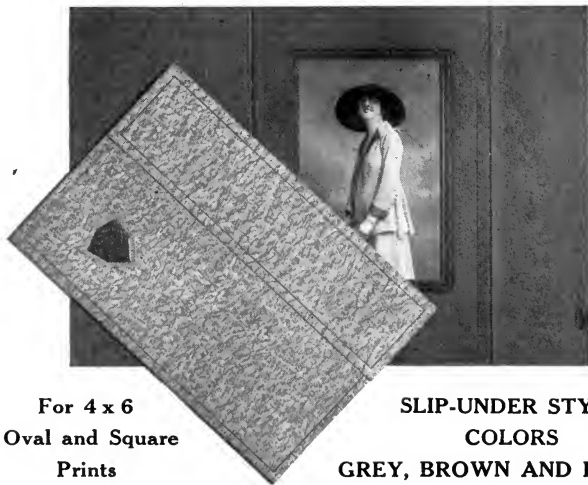
*Ask your dealer for Eastman Professional Catalog.*

**FOLMER & SCHWING DEPARTMENT**

**EASTMAN KODAK CO.**

**ROCHESTER, N. Y.**

# STYLE MAJESTIC



For 4 x 6  
Oval and Square  
Prints

SLIP-UNDER STYLE  
COLORS  
GREY, BROWN AND BUFF

**The Majestic** made of new shades in special enamel stock with a very rich engraved finish. Insert has tinted and embossed bead design with a very attractive shield Crest, brought up in enamel color effect, on upper left hand corner.

This is a very attractive and high class folder to feature for your better class of customers.

SAMPLE MAILED FREE

DESIGNED AND MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

PHOTOGRAPHIC MOUNTS  
MADE IN CANADA



Prints by projection on

# ARTURA CARBON BLACK

cost less, sell for as much and  
have all the quality of contact  
prints from large negatives.



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

*All Dealers'.*



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE · THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

OCTOBER 1919

No. 8

## TEN MILLION THIS TIME

We told you last month of the eleven and one half million pages of advertising that would start working for you in September. It's working now and has been ever since that big list of magazines went on the news stands and into the mails.

You have seen it if you read magazines or if you merely glance through them. That page hits you squarely between the eyes. There isn't another page of advertising in any one of those magazines that is so compelling—that gets your attention with such a jolt and holds it with such a grip.

Now for the November drive.

We believe this copy is even stronger than that of last month. We show it, reduced in size, on page 5. As a full magazine page it will be bold and attractive. There is not too much to read and the mind is directed at

once to the need of photographs and their appropriateness as Christmas remembrances.

Ten million copies of November magazines, each one containing this forceful argument for Christmas pictures, will reach magazine readers about the middle of this month, and most of these advertisements will cover an entire magazine page. It will help photography—will make business and it will bring it to you early to avoid the December rush, provided you also advertise.

We can tell millions of people why they should have photographs made. We can place the desire for pictures in their minds—can practically make sales, but we can't direct the buyer more definitely than we have in the line: "*There's a photographer in your town.*"

The ten million circulation of this advertisement is distributed among the following magazines:—Full pages in November *Vogue*,

*Atlantic Monthly, Century, Harper's, Review of Reviews, Scribner's, World's Work, Motion Picture Magazine, Everybody's, Metropolitan, McClure's, Saturday Evening Post;* as one-quarter page in *Ladies' Home Journal, Woman's Home Companion, Pictorial Review, Designer, Delineator, Woman's Magazine* and a 224 line space in *Life*.

We have furnished the copy that we think will create the greatest desire for photographs as gifts at Christmas time. We have bought full pages in most of the magazines because we didn't want other advertisements to take the reader's attention. And we have selected the list of magazines in which we have bought space with the idea of reaching the classes of people who can afford to buy photographs and who are likely to spend some of their surplus for photographs.

This is as far as we can go. But you can go further and direct the buyer to your studio. For example, mother and father sit down for a quiet hour after dinner, mother with the *Ladies' Home Journal* and father with the daily paper. Mother reads our advertisement and says: "Henry, we must have some pictures made this year to give to the folks for Christmas and we should have them made early so we will be sure of getting them in good time."

"All right, mother, you make the arrangements. Smith is advertising now—just read one of his ads about making appointments before the rush, etc. I see his advertisements quite often, and I have seen good pictures he has made."

Both have seen good pictures other photographers have made, but Smith has asked for the business in his local advertising and more than likely Smith gets it.

National advertising will sell merchandise in your town, but supplemented by *your* advertising it will sell more and you will get a larger share of the business.

Make this advertising work for you in your town.



*To-day, as in pre-war days,  
there's nothing superior to*

**ELON**

for producing prints  
of utmost quality with  
the greatest economy

*Accept No*

*Substitutes*

*At Christmas Time*

Your friends can buy  
anything you can give  
them—  
except your photograph.

*There's a Photographer in Your Town.*

(And he's not as busy now as he will be in December.)

Eastman Kodak Company, Rochester, N. Y.

## FOR FRIENDS OVER-SEAS

The advertisement on the preceding page should appeal with special force to the thousands of recently returned soldiers who were once possible customers of yours, though you have missed their business while they were on duty in Europe.

A veritable host of them have come home since the Armistice, among whom are many thousands who formed fast friendships in the British Isles. To cement the bonds of such friendships, one would go far to find more acceptable souvenirs than photographs at Christmas, for the hospitality of the Old Country people was deeply appreciated by the Canadian Boys, and many an Old Country family warmly received Canadian Cousins, whom they'd scarcely ever have seen had it not been for Britain's call to Canada.

The idea can be carried out effectively by working the sentiment of the magazine advertisements into your newspaper advertising, and a few well got-up prints in your show-case, accompanied by a neatly lettered card giving the pith of your message, will be directly productive of results.

Usually, it is a matter of no great difficulty to secure the names of returned soldiers in any locality, and a printed reminder,

by means of a brief letter, will most surely create the interest and action you desire.



## THE FILM SITUATION

For several years before Eastman Portrait Film was produced in Canada, the Canadian Edition of *STUDIO LIGHT* reprinted the articles written to place before United States photographers the merits of this modern negative-making medium. So to speak, the way was being paved for the Canadian appearance of Film, but we had no idea of the effective paving that had been done.

No photographer in Canada, to whom our demonstrators have shown Film, has failed to appreciate its merits, and seldom, too, has he failed to show conviction by an order for Film and Equipment.

Despite advertising conditions, referred to later, the sale of Eastman Portrait Film in Canada for September will equal more than half the sale of Seed R Plates. This showing is all the more noteworthy, in view of the handicap imposed by the shortage of Equipment. Our customers, who have been delayed through lack of accessories, will please be as indulgent as possible, for we need hardly labour the point that our travelling men are not encouraged when they find that the friends they won



PORTRAIT FILM NEGATIVE, ARTURA PRINT



*By L. J. Buckley  
Binghamton, N. Y.*

for Film are still using Plates, through lack of Equipment.

Every method of meeting the demand satisfactorily is being used to the full and no effort is being spared to overcome the handicap, despite which Film has gone so nicely. It is no satisfaction to a photographer to be told that we are doing all we can do to meet his requirements in this regard, but it is none the less true that we can hardly be held responsible for the present world-wide shortage of help and mate-

rial of every kind. So clean-cut is the superiority of Film over Plates, that a very considerable number of photographers have ordered real Film Equipment, preferring the Film Holders to the Sheaths and Kits, which adapt Plate Equipment for use with Film. This, after all, is the most satisfactory course, for the cost is more than set off by the ability to obtain results far beyond the capacity of Plates, in a straightaway and certain method of working.



## NEW PRICE LIST ON PLATES

*Seed, Royal and Stan'ey—Effective Oct. 6, 1919*

Sizes	Price Per Dozen	Backed Per Dozen
2½ x 2½ . . . . .	\$ .35 . . . . .	\$ .45
2¼ x 3¼ . . . . .	.40 . . . . .	.50
3½ x 3½ . . . . .	.45 . . . . .	.55
3¼ x 4¼ . . . . .	.55 . . . . .	.65
3¼ x 5½ . . . . .	.75 . . . . .	.85
4 x 5 . . . . .	.75 . . . . .	.85
4¼ x 6½ . . . . .	1.10 . . . . .	1.25
4¾ x 6½ . . . . .	1.15 . . . . .	1.30
5 x 7 . . . . .	1.25 . . . . .	1.50
5 x 8 . . . . .	1.45 . . . . .	1.70
6½ x 8½ . . . . .	1.90 . . . . .	2.15
7 x 11 . . . . .	2.75 . . . . .	3.10
8 x 10 . . . . .	2.75 . . . . .	3.10
10 x 12 . . . . .	4.85 . . . . .	Seed
7 x 17 . . . . .	6.50 . . . . .	and
11 x 14 . . . . .	7.00 . . . . .	Royal
14 x 17 . . . . .	12.00 . . . . .	Brands
8 x 20 . . . . .	12.65 . . . . .	only
16 x 20 . . . . .	23.00 . . . . .	
18 x 22 . . . . .	32.00 . . . . .	
20 x 24 . . . . .	40.00 . . . . .	

### *Royal Lantern Slide Plates*

Sizes	Price Per Dozen	With Backing
3¼ x 3¼ . . . . .	\$ .50 . . . . .	\$ .60
3¼ x 4 . . . . .	.55 . . . . .	.65





PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley*  
*Binghamton, N. Y.*





## EASTMAN STEEL ENAMELED DEVELOPING BOXES

The Eastman Steel Enameled Developing box for developing Portrait Film in Film Hangers or Plates in Core Racks is a very durable as well as convenient developing box for either the portrait or commercial photographer.

Three things have to be considered in selecting developing equipment; its size, its convenience and its durability. Eastman Steel Enameled Developing Boxes are made of thin steel heavily enameled and will be found light in weight but rigid in construction. They occupy the minimum amount of space, are easy to handle and exceptionally durable. The boxes are made with a rim on which the devel-

oping hangers rest and around this is a collar over which the deep cover fits, excluding all light from the inside of the box. This form of construction makes the box very easy to handle when filled with solution as a firm grip may be taken on the rim of the box either at the sides or ends. The projecting rim and collar are of sufficient width and depth to permit the box to be covered when filled with hangers, without disturbing the contents. In addition to the box and the cover, a floating lid is furnished which is also enameled. It is in the form of a tray with a handle in the center and floats on top of the solution. This prevents oxidation, as practically no air



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



reaches the developer when the lid floats on its surface.

The boxes, covers and floating lids are furnished separately at the following prices:

#### EASTMAN STEEL ENAMELED DEVELOPING BOXES

No. 2—For eight 5 x 7 Film Developing Hangers . . . . .	\$6.25
No. 2A—For twenty 5 x 7 Film Developing Hangers . . . . .	7.25
No. 3—For twenty 5 x 7 or twelve 8 x 10 Film Developing Hangers . . . . .	8.00
No. 3A—For six 8 x 10 Film Developing Hangers . . . . .	6.75
No. 4—For twenty 5 x 7 or twelve 7 x 11 Film Developing Hangers . . . . .	8.50

These Developing Boxes may also be used for Core Plate Developing Racks.

#### EASTMAN STEEL ENAMELED COVERS

For No. 2 Developing Box . . . . .	\$1.70
For No. 2A Developing Box . . . . .	2.15
For No. 3 Developing Box . . . . .	2.15
For No. 3A Developing Box . . . . .	1.70
For No. 4 Developing Box . . . . .	2.15

#### EASTMAN STEEL ENAMELED FLOATING LIDS

For No. 2 Developing Box . . . . .	\$1.10
For No. 2A Developing Box . . . . .	1.10
For No. 3 Developing Box . . . . .	1.10
For No. 3A Developing Box . . . . .	1.10
For No. 4 Developing Box . . . . .	1.10



## EASTMAN PORTRAIT FILM

*will do all the things a  
plate can do and much that  
a plate cannot do*

## THE MAN WHO MADE THE PICTURES

A young man, a scant ten years in the profession and recognized as one of the leaders—this is the score Mr. L. J. Buckley, of Binghamton, N. Y., has made in the photographic game.

Those who attended the National or one of several other recent conventions have seen his demonstrations and the work he has produced, though we think a man's work is seldom at its best in public demonstrations.

Mr. Buckley did not, however, come into the lime light in a day, after years of perseverance and struggle for recognition. As far back as 1913 he was honored by the international Exposition at Ghent, Belgium, by having two of his portraits hung in Class A. He is not a discovery. On the contrary he is well known in his own part of the country and through the reproduction of his work we are pleased to extend his acquaintance to our readers.

A study of the old masters has been an inspiration to Mr. Buckley in his work and of these his favorites are Gainsborough, Romney, Greuze, Van Dyke and Reynolds.

One of his favorite lightings is the line or back lighting and for the benefit of those who wish to try it we will give Mr.



PORTAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



Buckley's own description of his working methods.

"One of the finest lighting effects in the making of portraits is the line or back lighting. It is meeting with much favor and those who have tried it find it very interesting.

"I have been working this light for seven years and feel very well acquainted with it, so I may be able to give a few hints to those who try it for the first time.

"Some of the best examples of lighting to-day are found in motion pictures which introduce light effects of all descriptions, and one who is at all observing will learn many clever and artistic methods of lighting from this source. When you see a lighting that appeals to you, see that film again and study it.

"In photographing against the light, great care should be taken to shade the light. This is the secret of back lighting. By this I do not mean screening the lens, as this is not practical. It is the light that must be screened.

"I work the back light by using a thousand Watt Mazda, Z3 globe, with a revolving black shade attached to the lamp stand. (This shade is shaped something like a grocer's sugar scoop, covers one side of the lamp and revolves around the base of the lamp socket.) You may think that a white lamp reflector should be used, but my experience has

taught me that a white lamp reflector has a tendency to cause more or less halation.

"The three things that will do most to prevent halation are, first, the use of Portrait Films; second, shading the light from the lens; third, the use of a shade that is black inside and does not reflect any of the light from the lamp.

"The adjustable stand that I use enables me to place the light any place in the picture. One of the fine effects of back lighting is secured by placing the light directly back of the subject, a bride for example. This produces catchy lights through the delicate draperies and adds considerable to the general effect. The light used over the head and just back of the subject gives another popular effect. You will also secure novel effects by placing the light on the floor just back of the subject in reading poses with the eyes looking down.

"The four characteristics of the back lighting are these: it subordinates detail, it softens and enriches the shadows, it intensifies the highlights and beautifies and simplifies the composition.

"To educate one's self to back lighting one should study the form against the light. This can be done on the street cars, in church, in the theatres, in fact any place where you see people against a strong light.



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley*  
*Binghamton, N. Y.*



"At first, photography against the light may seem easy, but there are many obstacles and you will make failures before you have such a light under control. For example, your modeling may not be right, you may not have sufficient light on the side facing you, making your shadows appear muddy, or you may have too much front light killing the effect you are trying to produce in the back or you may have difficulty in lighting your background.

"These obstacles are easily overcome by patience and the use of good common sense. By getting enough light on the front side, from whatever general source of illumination you use, the lighting is balanced and a good effect easily secured.

"Just one word about the artisticness of this lighting, since I have heard some call it a freak lighting. In the *Cosmopolitan Magazine* for March, 1919, you will find some very beautiful reproductions of paintings by Flemming. Mr. Flemming is recognized as an artist of unusual ability and I would advise every photographer who is interested in creating new effects to study those pictures. Most of them have the back lighting and are handled with such grace that their beauty impresses you from the moment you see them. They illustrate how one of the masters of art handled this particular

scheme of lighting and what wonderful results he secured."

We show several examples of Mr. Buckley's back lighting as well as other lights which he handles equally well. One's work must be diversified and that it may be it is well to learn new things but not overdo them.

We would add to what Mr. Buckley has said that we think he goes about the making of a back lighting by first lighting the subject in the ordinary way from the front, making the light rather soft. Then with the back light his shadows are transformed into highlights and his former lighted side into the shadow side. And just here is the secret of the wonderful transparency of the shadows in such work.



## *Eastman Portrait Film*

*Is used—and appreciated—  
in all parts of the world.  
Here is a recent testimonial:*

*"I have quite given up  
glass plates and will cer-  
tainly never go back to them  
if I can avoid it."*

*J. C. Munro, Pretoria,  
South Africa.*





PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



## NEW BUSINESS SUGGESTIONS

In nearly every large city there are one or more newspapers that are publishing a photo-gravure section and even some of the smaller cities boast of one of these gravure sections.

The reason for this is obvious. The people want pictures and there is no process by which pictures can be reproduced so well and at so little expense in a newspaper as by the gravure process.

You know the nature of the pictures that are used; news events, fashions, portraits of socially, politically or industrially prominent people—pictures having the greatest news interest. But do you know that the advertising managers of these papers are constantly saying to their customers, "Let pictures sell your goods"? They want to sell advertising space in these gravure sections and as the big advantage is the fact that photographs can be well reproduced here and not in other sections of the paper, they talk pictures.

You should work hand in hand with any man who is boosting your business and the gravure advertising man is doing this very thing. Why not get in touch with him and learn what kind of material he is looking for?

If you are a commercial photographer you may have pictures or

make pictures quite often that have sufficient news value to be worth money or the credit that is given you, which is good advertising.

Aside from this you may get business from those who advertise in the gravure sections. Suppose a merchant has just been convinced that he can sell furs by advertising in the gravure section, using pictures showing the garments on attractive models. You get the business and soon find that it grows. More models are photographed for catalogue illustrations. Possibly you can induce Mr. Merchant to use photographic prints in a number of ways. If the pictures sell furs you will surely get more business.

Anything that can be made more attractive by pictures can be sold more easily by pictures, whether it be real estate or candy, or automobiles or jewelry. Some of the pictures used in advertising can be made to better advantage in a portrait studio than by a commercial photographer and vice versa.

The business that is most likely to bring the best cash returns is the business with the man who advertises and wishes to use pictures in his advertising. The business with the newspaper is not so likely to bring cash returns, but if you are given a credit line beneath each picture the advertising is cheap. It's worth trying.



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



## PRACTICAL SUGGESTIONS

It is quite common nowadays to see expensive lenses without lens caps to protect them. The cap is seldom used for making exposures but it should cover the lens at all times when it is not in use. If lens caps were universally used on lenses, for the protection they afford, there would be fewer complaints traced to dirty lenses and fewer chances of scratching their highly polished surfaces because of the necessary cleaning.

---

If your negatives have a slight veil of fog, look for the trouble in your lens. A dusty lens will give a scatter of light that will cause a general fog that is very destructive to negative quality.

If your lens is perfectly clean look for bright pieces of metal or wood inside the camera and go over these with a dead black paint. There must be no glossy surfaces inside the camera, no matter how black they may be.

When the fog extends over the margins of the negative that are protected by the rabbets of the plate or film holders it is evident that the fog is not a fault of camera or holders. The trouble must then be looked for in the dark room. Our method of determining whether or not any outside light reaches the film or

plate while it is developing is very ingenious. Place a mirror in the position occupied by the developing tray and with all lights extinguished examine the mirror for any reflection of light. It may be that light from outside reaches the developing tray from a source which cannot be seen except from the position of the developing tray. If this is the case such light will be seen in the mirror.

If the dark room light is unsafe the passage of actinic rays can be detected by laying an unexposed plate in the tray in total darkness, laying one or two coins on it at the same time. If the dark room light is turned on and the developer applied, the presence of fog should be detected in five or six minutes by the production of outlines of the coins when they are removed.

Tests for the safety of a dark room should always be made at the distance from the light at which the developing tray is used. A light may be safe for developing at a distance of four feet and altogether unsafe at two feet. In fact there is no light that is perfectly safe for an indefinite time. For this reason the safest light filters, Wratten Safelights, have been given a standard of safety which permits of a plate being developed at three feet from the light.





PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*





*At Christmas Time*

Solve your gift  
problems with  
photographs.

*Make the appointment  
to-day—it's none  
too early.*

## THE PYRO STUDIO

Line cut No. 208, Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.



PORTRAIT FILM NEGATIVE, ARTURA PRINT

*By L. J. Buckley  
Binghamton, N. Y.*



# WANTED

## DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from  $4\frac{3}{4}$  x  $6\frac{1}{2}$  to 14 x 17, providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,  
Toronto, Canada

*Address shipments to West Toronto.*



# ELON

## BETTER THAN EVER

Elon is unsurpassed for the richness and brilliancy of the prints it produces. It is economical because every grain of it creates developing energy. Your dealer can supply you.

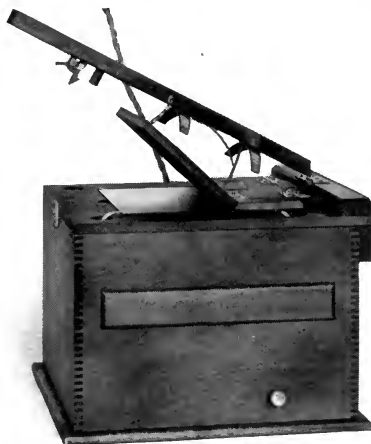
*We test it—we know it's right.*

### THE PRICE

1 oz. bottle . . . . .	\$ 2.10
¼ lb. bottle . . . . .	8.00
½ lb. bottle . . . . .	15.50
1 lb. bottle . . . . .	30.00

Canadian Kodak Co., Limited,

Toronto, Canada.



*You need another printer*

## THE NO. 1 EASTMAN PRINTER

Answers every requirement. Use it for proof printing—use it for small work—use it for breaking in an apprentice. You can always find use for two printers, and this one is thoroughly practical, convenient and economical.

Has automatic switch, lamp adjustments, red light and slide for ground glass. Burns two 60-Watt lamps and takes all negatives up to 5 x 7.

The price, with red lamp, cord and plug to  
fit ordinary electric socket, . . . \$17.50

*f. o. b. Rochester.*

**Canadian Kodak Co., Limited,**

*All Dealers'.*

**Toronto, Canada**

# Eastman Permanent Crystal Pyro

*We test it—we know it's right.*

That's all we need say for its quality. As for results, we might say that Pyro-developed negatives have never been excelled. Possibly you can improve your negatives by using Pyro.

## THE PRICE

1 oz.	-	-	-	-	-	\$ 0.42
$\frac{1}{4}$ lb.	-	-	-	-	-	1.25
$\frac{1}{2}$ lb.	-	-	-	-	-	2.35
1 lb.	-	-	-	-	-	4.50

Canadian Kodak Co., Limited,  
Toronto, Canada

*All Dealers'.*

# PROFESSIONAL EASTMAN BOOKLETS

## “Lantern Slides”

### How to Make and Color Them

A handbook of information concerning the production and coloring of lantern slides with a new method of dye toning by the aid of American made dyes.

*Free on application*

## “Elementary Photographic Chemistry”

The chemistry of photography with a description of the preparation and properties of the different chemicals used.

*Free on application*

## “Color Plates and Filters for Commercial Photography”

A booklet which makes clear the principles involved in the photography of colored objects.

*Free on application*

## “Photomicrography”

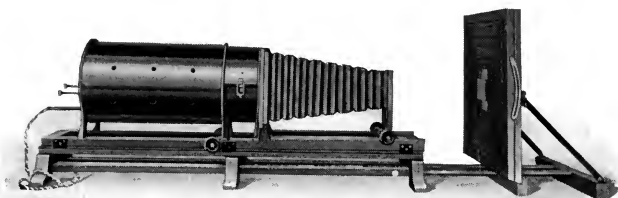
A simple description of the principles and practice of photography through the microscope.

*Post paid, 15 cents*

Canadian Kodak Co., Limited,

Toronto, Canada.

*Feature large prints as Christmas Gifts—  
and make them yourself.*



## THE EASTMAN ENLARGING OUTFIT

Is a substantial, practical and convenient piece of studio work-room equipment. It accommodates 5 x 7 and smaller negatives, has adjustable negative holder, 10-inch condensers and 500-watt lamp.

The special easel has kits for 16 x 20 and all of the standard smaller sizes as well as a special attachment for making lantern slides.

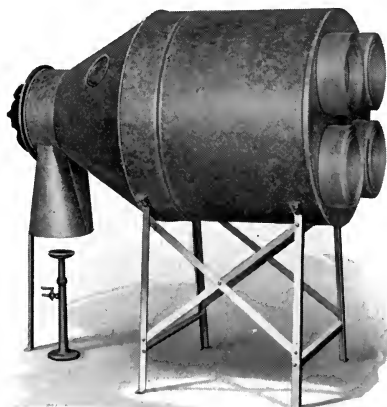
Eastman Enlarging Outfit, complete  
without lens . . . . . \$150.00

Canadian Kodak Co., Limited,  
Toronto, Canada.

*All Dealers'.*

*Deliver your holiday orders on time—  
use a practical and dependable dryer*

## NO. 4 PROFESSIONAL MAJESTIC PRINT DRYER



To take the curl out of a print and keep it out it must be bone dry. Fifteen or twenty minutes are required to dry a print right. The Majestic Dryer is easy to operate, dependable and efficient. Its four rolls hold a large number of prints, the rolls are filled quickly and by the time the fourth roll is filled the first is about dry. The initial cost is small—there is nothing to get out of order.

No. 4 Professional Majestic Print Dryer, complete with drying rolls, electric motor, fan, gas heater and stand, \$85.00

Canadian Kodak Co., Limited,

Toronto, Canada

*All Dealers'.*

# NEW LIST PRICES ON EASTMAN PORTRAIT FILM

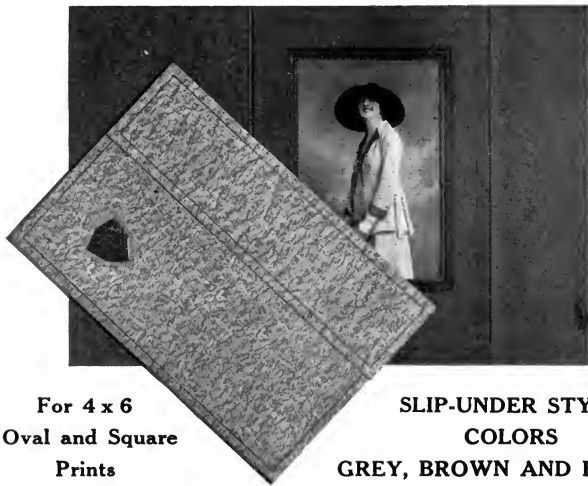
*In effect October 7, 1919*

Sizes								Price Per Dozen
4 $\frac{1}{4}$	x 6 $\frac{1}{2}$	.	.	.	.	.	.	\$ 1.10
4 $\frac{3}{4}$	x 6 $\frac{1}{2}$	.	.	.	.	.	.	1.15
5	x 7	.	.	.	.	.	.	1.25
5	x 8	.	.	.	.	.	.	1.45
6 $\frac{1}{2}$	x 8 $\frac{1}{2}$	.	.	.	.	.	.	1.90
7	x 10	.	.	.	.	.	.	2.40
7	x 11	.	.	.	.	.	.	2.75
8	x 10	.	.	.	.	.	.	2.75
10	x 12	.	.	.	.	.	.	4.85
7	x 17	.	.	.	.	.	.	4.85
11	x 14	.	.	.	.	.	.	7.00
8	x 20	.	.	.	.	.	.	7.25
12	x 20	.	.	.	.	.	.	11.00

Canadian Kodak Co., Limited

Toronto, Canada

# STYLE MAJESTIC



For 4 x 6  
Oval and Square  
Prints

SLIP-UNDER STYLE  
COLORS  
GREY, BROWN AND BUFF

**The Majestic** made of new shades in special enamel stock with a very rich engraved finish. Insert has tinted and embossed bead design with a very attractive shield Crest, brought up in enamel color effect, on upper left hand corner.

This is a very attractive and high class folder to feature for your better class of customers.

**SAMPLE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS  
MADE IN CANADA



Large prints on

ARTURA  
CARBON  
BLACK

Retain the contact quality.

Increase your profits—sell them with  
every Christmas order.



CANADIAN KODAK CO.,  
LIMITED,  
TORONTO, CANADA.

*All Dealers'.*



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*By Blank & Stoller  
New York, N. Y.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

NOVEMBER 1919

No. 9

## PLATES, FILM AND PAPERS ADVANCE

The time has come when raising the price of Dry Plates, Portrait Films and most photographic papers has become an absolute necessity.

The photographers have had and are having a big business, but like the manufacturers of photographic materials they have not, on the average, raised their prices in proportion to the prices on other goods. The photographer is entitled to a fair profit, and if he is unable to make it at the increased cost of material, he is justified in passing on to his customers this necessary increase in the cost of making photographs.

It is necessity, not opportunity, that is causing us to make an advance in the price of materials that we were long since justified in advancing, and no one can say the photographer is not equally justified in advancing his prices with a like motive.

The stability in the price of photographic materials during and since the war has been remarkable. Not that there was no excuse for raising prices, for there were opportunities without number, but we did not choose to take advantage of them.

When the war put up the cost of silver and glass and gelatine, we still held to our pre-war prices until our stocks of raw materials were exhausted, and then made but a slight advance in plates.

We hoped, after the signing of the armistice, that costs would go down slowly and that increased business and increased efficiency in production would enable us to maintain the old prices. Nearly eleven months have passed, but, instead of going down, costs have continued to advance, and an advance in the selling price of Plates, Film and Paper has become imperative.

This is an old story to consumers of practically every line

other than photographic materials. We are proud of the fact that it is not an old story to photographers—that we have been able to hold down prices for so long. But silver has advanced about 125% above the pre-war price, gelatine about 75%, glass over 100%, paper is sky high; cotton, which enters so importantly into the film base, has risen violently, and the solvents and other chemicals have likewise rocketed. Such essentials as labels and boxes are already away up, and, with the cost of living mounting, we have naturally made increases in our pay roll.

Increased volume of business and increased efficiency in manufacturing methods, along with the loyalty of a great body of workers who have the incentive to do their work most efficiently, and well, have materially aided us, but could not overcome the handicap of advancing costs.

In no instance, during the war, or since, have we taken advantage of a shortage to boost prices. As long as we were able to keep our costs down through large, early purchases and economy, we gave the trade the benefit. But our old stocks are exhausted and our only course is to advance prices.

The advance will not make the prices of photographs prohibitive, and, we feel sure, will in no way affect the demand for portraits. There is no line of

business, we believe, where the net average advances have been so small, during the war period, as in the photographic business. We feel that we can take an honest pride in the part we have taken in keeping prices down to the photographer, and that the photographer can likewise be proud of the fact that he has kept and can continue to keep the prices of photographs within the reach of all his customers.



## THE VALUE OF PROCESS FILMS FOR SPECIAL WORK

*By Alfred J. Jarman*

Recently the writer experienced considerable trouble in the endeavor to secure intense black and white transparencies and negatives from some old and valuable letters. The paper upon which they were written had become very yellow, or to be more correct, a decided brown. The ordinary dry plate would not produce the contrast desired, no matter by what process it was intensified. It was decided to put the process film to practical use, with the endeavor to obtain, if possible, the best results.

These trials were made upon 5 x 7 Eastman Process films, developed with a Kodelon Hydroquinone developer, and after a thorough washing and fixing in a



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hyposulphite of soda fixing bath containing a moderate quantity of hardener, they were well washed again by changing the water half a dozen times in a separate tray, allowing about five minutes to elapse between each change. They were then bleached in a solution of bichloride of mercury, made by dissolving 120 grains of bichloride of mercury and 100 grains of chloride of ammonium in twenty-four fluid ounces of water. As soon as the films were well bleached, they were washed for five minutes in running water, then blackened with a solution of ammonia of the following strength: Half an ounce of strong water ammonia in eight fluid ounces of water. As soon as blackening was complete, which required about five seconds, they were washed in cold water for about two minutes, and then suspended to dry, as soon as they had been carefully wiped lightly with a tuft of absorbent cotton under a stream of water from the faucet.

The intensification was complete, no plate negative ever equalled them except those made by the wet collodion process.

The paper prints sent herewith were made from the negatives described.

There is no indication that these prints of old letters possessed any trace of a brownish yellow color in the white parts, or what would be the white

paper, if the letter had been recently written.

Another advantage in the use of these films lies in the production of transparencies of valuable negatives so that a negative or any number of negatives may be made at any time in case the original negative should become broken. It may be said that the same thing can be done with a glass transparency, as has often been done, true, but there is still the risk of this kind of transparency becoming broken, while such risk is completely eliminated when the film is used. There are times when it is absolutely necessary to make a transparency from a negative 20 x 24", owing to the fact that such a negative cannot be made again from the original object. Take, for instance, when during the late world's war where so many beautiful structures in the fine cathedrals, and other historical buildings have been destroyed, a transparency made upon a film from any of such negatives would prove to be invaluable. Again, the risk that is run when printing from large glass negatives, from plates varying in size up to 24 x 40", is entirely obviated when a film negative is used. It is well known that considerable care must be taken to see that no grit of any kind be permitted to rest upon the supporting glass plate of the printing frame or machine, when a glass negative is used, while if



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*By Blank & Stoller  
New York, N. Y.*



Buckingham Palace.  
Sept. 13. 76.

My dear Sir J. S. Middleton is  
desirous to acknowledge the 2  
Photographers sent by Mr. Sarmon.  
The Queen cannot credit them,  
but will purchase them, &  
also, if Mr. Sarmon will  
send them, 2 Photographs of  
the Room where the Duchess of  
Kent lived, such as it is now.

Halftone of the Print from Process Film Negative

a film negative is to be printed from no risk need be feared from this cause or from uneven pressure. Upon one occasion the writer experienced the breaking of a glass negative, 24 x 40", due apparently to uneven pressure. In this case it required two men to handle the printing

frame, owing to the glass supporting plate of the frame being three-eighths of an inch thick. In the case of a film negative no such accidents need be feared, because uneven pressure would not affect the negative, the only thing to be attended to in the event of using a large film nega-





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tive would be to see that there was uniform contact with the paper upon the negative.

Another advantage of a film negative or transparency is in the printing of an ornamental edging upon a paper print, or transparency, which is produced by double printing. Such negatives or transparencies as these are used rapidly when a large number of prints are required. Only too often do these negatives for border printing become broken. For this reason the writer has adopted the plan of making such negatives upon 5 x 7 films, as well as providing an original film transparency for future use. Examples also of border printing sent herewith will give an idea as to how perfect a line drawing may be produced upon a film negative.

It is this kind of negative that has hard usage in every day work. No matter how perfect a glass negative may be made, it cannot be made accident-proof when it has to be handled so many times daily, while with a film negative, if it should be accidentally dropped, there is no fear of its becoming broken. If it should become very much scratched, another may be readily made from the original film transparency.

When making a transparency from a negative or a negative from a transparency by the use of the film, no difficulty has been experienced whatever for want of con-

tact from buckling, either from film to glass or film to film, at any time when such negative or transparency is made in an ordinary printing frame, the film lending itself to any kind of pressure owing to its pliability and resilient quality.



## NEWS OF THE NATIONAL ASSOCIATION

The National Convention will be held at Milwaukee, August 23-28, in the large Milwaukee Auditorium. The great Auditorium is an ideal meeting place for conventions and has been secured on terms very favorable to the National Association.

This great Auditorium has special advantages that make it attractive as a convention hall. It contains an arena with seating capacity of 10,000, good sized lecture and demonstrating rooms and a first class grill. The manufacturers' exhibits will be placed in the arena, the meetings, demonstrations and lectures in smaller halls and the banquet in the grill.

A contemplated feature of the 1920 Convention is a collection of the best pictures from each of the Amalgamated Associations. Each association will make but one entry of a certain number of pictures selected from the best work of individual members. The pictures will be judged and



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New York, N. Y.



a trophy valued at \$250.00 will be awarded to the exhibit receiving the greatest total of points, this trophy to be won two consecutive years to become the property of the winning association.

Plans are being formulated to secure the best talent available for practical business lectures and demonstrators and to furnish the services of these men to the Amalgamated Associations at practically no expense to them. In this way the National Association will play a helpful part in all convention affairs and by so doing gain strength and prestige for itself.

A big membership drive is planned for the second week in January, and this should have the hearty support of all photographers. A Captain will be selected for every city and town and an announcement of his appointment will soon be sent him along with literature explaining how the drive is to be conducted.

Two prizes of \$50.00 each will be awarded, one for the greatest number of memberships secured and one for the highest percentage of memberships in towns of ten or more photographers. Before the beginning of the membership drive every photographer in the country will receive a card setting forth the advantages of membership in the National Association. The drive will close Saturday night at midnight when

final reports will be sent to the Secretary. It is to be a live campaign and will mark the initial efforts of President-elect Chas. L. Lewis and the new Board toward making the National Association truly representative of all the photographers in the United States and Canada.



## NEW METHOD OF SILVER RECOVERY

Silver, at the present time, is hovering around \$1.15 an ounce—sometimes higher, and with a safe, clean and unobjectionable method of recovering the silver that goes into your fixing baths, it is certainly as foolish to let solutions containing this precious metal go into the sink as it would be to upset your cash box and refuse to pick up the nickels and dimes.

Previous methods of silver recovery have been either objectionable or impractical, when it has been necessary to recover silver in the studio. First of all, the fumes of sulphureted hydrogen, which are given off when the silver is precipitated as silver sulphide, will fog any photographic material in the vicinity. But even if this were not so, the odor of the fumes is so objectionable that it is necessary to recover the silver away from the studio.

Because of the very small ex-



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*New York, N. Y.*



pense of the recovery by this process, however, the fact that it is possible to minimize the amount of sulphureted hydrogen given off, may be of interest. This can be done by neutralizing the hypo solution with caustic soda, testing with litmus to tell when it has become neutral, and then adding an excess of caustic soda in the proportion of  $\frac{1}{2}$  lb. to the barrel of 50 gallons.

The silver is then precipitated in the usual way by adding about one quart of freshly prepared saturated solution of sulphide of soda. Stir well and allow to stand for at least twenty-four hours. At the end of this time, dip out a graduate of solution, add a small amount of sulphide solution and if the solution remains clear, all the silver has been precipitated.

#### NEW ZINC METHOD

The zinc method of silver recovery which has been worked out in our Research Laboratory is in no way objectionable. The zinc used is the metal in granulated form, similar to metal filings. Your stock house will be able to procure some for you.

Place your exhausted hypo solutions in wooden kegs or barrels. If the bath is alkaline, it should be neutralized with acetic acid, using litmus paper as an indicator. Then add an excess of acid in the proportion of 1 oz. glacial or 3 ozs. 28% acetic acid

to the gallon of solution. Then add the granulated zinc in the proportion of 2 lbs. to the gallon of solution and stir occasionally.

After twenty-four hours, the silver should all be precipitated as a black sludge of metallic silver. The progress of the extraction can be followed by taking a small portion of the liquid, making acid with a few drops of acetic and then adding a little sodium sulphide solution. A white precipitate indicates that all the silver has been removed—a black precipitate that some silver is still in solution and that the solution should stand longer.

When all the silver has precipitated and the solution is clear, decant it off. A convenient method is to have a spigot near the bottom of the barrel. The barrel or other container should then be filled up again and the operation repeated seven or eight times until the recovery becomes slow, owing to the exhaustion of the zinc.

The estimate of twenty-four hours for the recovery of silver is based on a fresh charge of zinc. As the extraction proceeds and the zinc is used up, the rate of precipitation falls off so that when more than two or three days are required to precipitate the silver, more zinc should be added.

As the silver is removed from the hypo solution, the zinc continues to dissolve in the acetic acid, but, allowing for this loss,

a pound of zinc, costing but a small sum, will recover a pound of silver, worth approximately \$17.00, so the recovery is certainly worth while.

When sending silver residues to a refinery, it is more economical to save until a quantity has been accumulated, as a fixed assay charge is made regardless of the quantity submitted. In gathering the sludge from the bottom of the barrel, save every particle of the solid matter, draining it carefully before packing for shipment.

It might be added that zinc dust was tried out thoroughly but was not found practical as it remains in suspension in the liquid and does not allow the liquid to be decanted readily. The coarser zinc settles rapidly and takes the silver with it, making decanting a simple matter.



Sales of Eastman Portrait Film in the United States, for the first eight months of 1919, were 122% in excess of those for the corresponding period of 1918. In Canada, the same comparison is not possible, because Film was put on the Canadian market early in 1919. However, the Canadian figures are surprisingly good, despite handicaps. The explanation is that film results are, in every instance, better than plate results.

## YES, THERE WAS A CATCH

The following excerpt from a letter, written by a man connected with a New York house, which does a national business, is interesting.

"I was down to see my father a few evenings ago and found him perusing the 'ads' in one of the magazines. He was very quiet until he came across a full page 'ad' of Eastman's, which, by the way, wasn't very full. His remarks were to the effect that he couldn't see any sense to it as *it didn't call attention to any of the good qualities of Kodaks* but was more of an 'ad' for the local photographer.

"The 'ad' in question had at the top, 'Between friends—a photograph', then a big blank space, and at the bottom, 'There's a photographer in your town' 'Eastman Kodak Co.'

"With all due respect to your Advertising Manager, I had to admit that there didn't seem to be much 'sense' to the 'ad' but that it was just peculiar enough to attract attention, and that is what an advertisement is really for. However, there may be a little catch in the 'ad' that neither my father nor I could see through, and I thought possibly you would like to enlighten me so that I can explain that the Eastman Kodak Co. is not throwing its good money away."



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New York, N. Y.*







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*New York, N. Y.*



He couldn't see the sense of it because it didn't advertise Kodaks but did advertise the local photographer. He was the unusual reader who wanted to know the "why" of it—and of course we took the trouble to explain to him.

He or some of his family have possibly been to a photographer by this time, or will be reminded to go before Christmas, because of his interest in that advertisement. That is all we expected. It is immaterial to us whether or not any one thinks we are throwing good money away so long as we know the advertisement is getting results for the photographer.

If we increase his business we will increase our own—not to the same extent, of course, for we do not sell all of the photographic material that is used. But we will trust to the quality of our goods to bring us our share of the business created.

This brings up a shallow argument against advertising that has often been used: "I can't advertise without my competitor getting the benefit of my advertising." The best advertising you can do will bring your competitor some business but it will bring you the greater share and so pay for itself. If it is poor advertising—if it is made up of selfish boasting, untruths or exaggerated claims, it will most likely drive business away. But if it is ad-

vertising written with the one idea of making more people want photographs, and the arguments are good, it will make business.



## DIFFICULT THINGS TO PHOTOGRAPH

### PAINTINGS

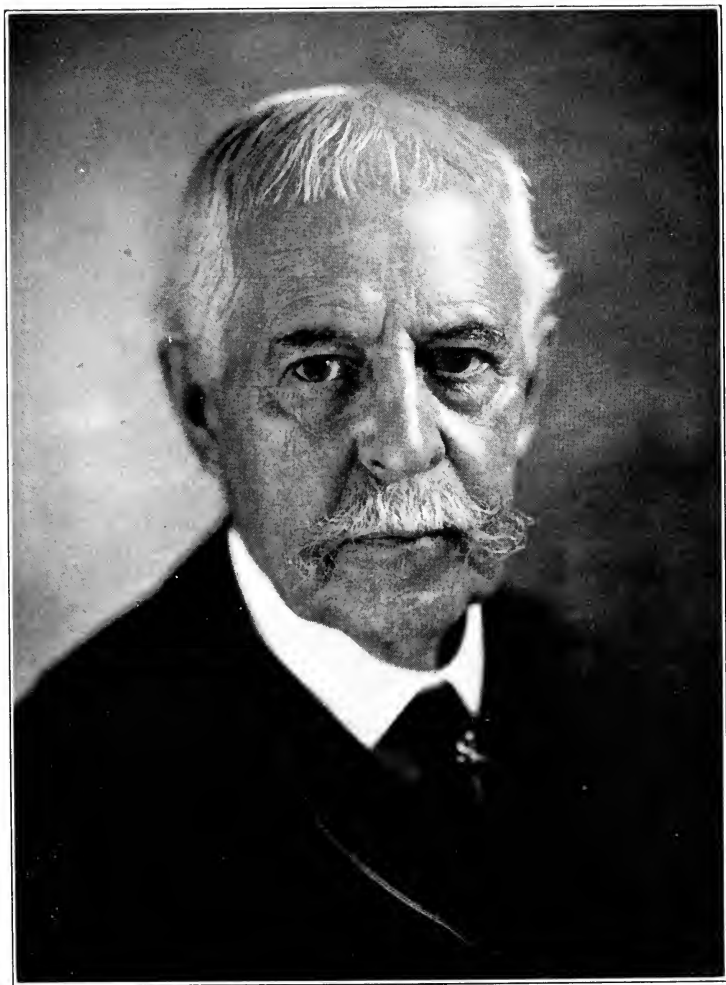
#### PART I

We receive inquiries from time to time as to the best methods of photographing various objects that any photographer may be called upon to photograph. And as any information we are able to give by correspondence can only reach a few, we will publish from time to time such information as we think may interest our readers.

Many photographers regard the copying in monotone of a painting as a thing to be avoided, and we will admit that the correct rendering of a highly colored painting is not so simple as copying a picture done in black and white, but it is not difficult if one goes about it in the proper way.

Color sensitive plates and filters have brought such work within the range of practical workmen and it is now possible for any photographer to produce copies of pictures which, for correctness of tone and color values, far surpass the work of the best specialists of a few years ago.

The subject is an exhaustive one, so we will not go into the



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treatment of old paintings which often require considerable preparation to put them in condition for photographing. Most of the work encountered will require merely proper lighting, the right materials and filters and correct viewpoint.

A modern painting may be improved by varnishing, if it is an oil and has become dull, and this the owner may agree to have done. Water colors and pastels need no such treatment, though pastels should be framed with a glass sufficiently away from the surface to prevent the glass from touching the surface and smudging the picture. This may be accomplished by using a moulding with a lining which is the same as one frame inside another. The glass is placed in the frame with the lining back of the glass. The picture is then held as far away from the glass as the thickness of the lining.

When viewed from the position of the lens a painting should be evenly lighted over its entire surface and there should be no reflections. Pictures vary considerably owing to the roughness of the canvas and the method used in applying the paint. As a general rule placing the picture a trifle less than at right angles to the source of light ( $75^{\circ}$ ) is most suitable. The distance from the light depends upon the size of the picture. The larger the picture the further away from the

light it must be placed to secure even illumination.

Reflection must be entirely overcome, and this is simple if the light is from the proper angle and the lens is not of too short focal length. When a ray of light strikes a plane surface the angle of incidence and the angle of reflection are equal. You can readily determine where it is necessary to place the camera to avoid these reflections.

Reflections most likely to reach the lens would be those from the left edge of the picture. Draw an imaginary line from the left edge of the picture towards your camera at a right angle to the plane of the picture. If the source of light is three feet to the left of this line at a point eight feet from the picture, the reflection will be three feet to the right of the line at eight feet from the picture. If the picture was six feet wide you would have to place your camera directly in front of its center so you would be unable to photograph it at a distance of eight feet without getting a reflection.

This reflection would be overcome by having the light come more from the side, causing it to be reflected more to the opposite side or by using a lens of greater focal length, enabling the camera to be placed sufficiently away from the picture to escape all reflections from the light source. Reflections from the floor, the



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ceiling, the side opposite the light or from the front must be eliminated. Those from the source of light must be avoided.

*(To be continued.)*



## QUICK DRYING OF NEGATIVES

Few photographers make a business of rush commercial or portrait work, but you can, no doubt, recall a number of times when it would have been decidedly to your advantage to have turned out prints quickly. Drying of negatives is the usual hindrance to such quick work, but if the occasion arises and you must get out prints in a hurry, Portrait Film is the material you should use for your negative making. The drying method is as follows:

To an amount of water necessary to properly immerse the film, add Potassium Carbonate gradually, until no more will dissolve. Then carefully filter the solution which should now have an oily appearance. After the film negative has been thoroughly fixed in the Acid Fixing and Hardening bath, it should be rinsed thoroughly for several minutes and the surplus water removed from both sides with a soft rubber squeegee. If the fixing and hardening has been thorough and the squeegee is clean, there will be no danger of scratching the negative.

The negative is now immersed in the saturated solution of Potassium Carbonate for two or three minutes, drained, and the excess carbonate solution removed in the same way as the excess water in the previous operation. The negative, which now feels quite hard and dry but seems to have a greasy surface, is laid on a perfectly clean surface and both sides are polished with a soft cloth.

The negative is now ready for printing and the entire operation of drying has not required more than four minutes.

After the required number of prints have been made, the negative should be washed thoroughly for at least fifteen minutes in water at a temperature below 70° F. in order to thoroughly remove the Potassium Carbonate from the film. If the water is over 70° F. the gelatine is very likely to reticulate during washing. No trouble need be feared from reticulation if the film is hardened in a 5% Formalin bath following the Acid Fixing Bath.

This quick drying method is not practical for use with plates because in the subsequent washing the gelatine film is most likely to leave its glass support and the negative be ruined. This does not occur with film because of the nature of the film and the greater adhesion of the gelatine to its film support.



### *At Christmas Time*

Make your gifts personal ones. Photographs will solve a lot of problems for the busy man—as gifts they are always appreciated.

*Make the appointment  
as soon as possible.*

## THE SMITH STUDIO

Line cut No. 469. Price, 50 cents.

### THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

# WANTED

## DISCARDED NEGATIVES

(GLASS OR PORTRAIT FILM)

We purchase discarded negatives of standard sizes from  $4\frac{3}{4}$  x  $6\frac{1}{2}$  to 14 x 17, providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

*Address shipments to West Toronto.*



# ELON

BETTER THAN EVER

Energetic in its developing action, of lasting strength and uniform quality.

We recommend Elon for the richness and brilliancy of the prints it produces.

*We test it—we know it's right.*

## REVISED PRICES

1 oz. bottle . . . . .	\$ 1.45
$\frac{1}{4}$ lb. bottle . . . . .	5.45
$\frac{1}{2}$ lb. bottle . . . . .	10.70
1 lb. bottle . . . . .	21.00

Canadian Kodak Co., Limited,  
Toronto, Canada.

*Work in a better light—  
Work in a safer light.*

# Wratten Safelight Lamp



The soft, indirect light from the Wratten Safelight Lamp is restful to the eyes—it's a better light to work in, and the Safelight makes it safe. There is plenty of light, and a definite standard of safety.

Safelights are made for plates of varying degrees of sensitiveness and may be quickly interchanged. The No. 2 Safelight is furnished unless otherwise specified.

Wratten Safelight Lamp, No. 1 . . . . .	\$13.50
Do., No. 2, without slide for white light . . . . .	10.50
Series 1 Safelight, for plates not color sensitive, 8x10 . . . . .	1.75
Series 2 Safelight, for Orthochromatic film or plates, 8 x 10 . . . . .	1.75
Series 3 Safelight, for Panchromatic plates, 8 x 10 . . . . .	1.75

**Canadian Kodak Co., Limited,**

**Toronto, Canada.**

*All Dealers'.*

*There's no better developer  
at any price.*

TOZOL

*The Complete Developer for  
Photographic Papers*

Every grain of it produces developing energy. Contains no soda, starch or other adulterants. Tozol is prepared exactly as it was before the war. We make it—we know it's right—we recommend it for Artura, Azo, Velox and other developing papers.

THE PRICE

1 oz. bottle . . . . .	\$ .84
$\frac{1}{4}$ lb. bottle . . . . .	2.85
$\frac{1}{2}$ lb. bottle . . . . .	5.50
1 lb. bottle . . . . .	10.75

Canadian Kodak Co., Limited,

Toronto, Canada

*All Dealers'.*

## Eastman Commercial Ortho Film

Eastman Commercial Ortho Film is suitable for all kinds of work where an orthochromatic plate would be required. It is color sensitive to a high degree, giving especially good color separation for all classes of commercial work not requiring a red sensitive plate. Used with a K 1 or K 2 Wratten Filter, it is extremely desirable for the reproduction of oak, unfinished mahogany furniture, and all subjects where the correct rendering of yellows is necessary, as in copying sepia tone prints on buff stock, etc. It has great latitude, allowing for considerable variation in exposure, which should be about three times that of Portrait Film,

*Prices same as on Portrait Film.*

Canadian Kodak Co., Limited,  
Toronto, Canada

## Eastman Commercial Film

Eastman Commercial Film, which has a slow emulsion, is especially suitable for commercial work, for copying work in Studios, for drawings, etc. It has more contrast than Portrait Film and requires about four times as great an exposure.

Both Commercial and Commercial Ortho Films have a steeper scale of gradation than Portrait Film and yield exceptionally brilliant negatives.

*Prices same as on Portrait Film.*

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## Eastman Process Film

Eastman Process Film will be found most useful by the photo-engraver and photo-lithographer. It will give any degree of contrast, and is equally suitable for negatives or positives. The photographer will find it useful for the reproduction of line drawings, tracings, and for all purposes where extreme contrast is required.

*Prices same as on Portrait Film.*

**Canadian Kodak Co., Limited,**

Toronto, Canada

# PLATES AND PORTRAIT FILM

*Advance in Prices effective October 7th, 1919*

**Seed, Royal (S. E. R., Polychrome and Process) and Stanley**

Sizes		Price per Doz.		Backed Plates (Royal and Seed only) Price per Doz.	
2 $\frac{1}{2}$ x 2 $\frac{1}{2}$	. . . . .	\$ .35	. . . . .	\$ .45	
2 $\frac{1}{4}$ x 3 $\frac{1}{4}$	. . . . .	.40	. . . . .	.50	
3 $\frac{1}{2}$ x 3 $\frac{1}{2}$	. . . . .	.45	. . . . .	.55	
3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	. . . . .	.55	. . . . .	.65	
3 $\frac{1}{4}$ x 5 $\frac{1}{2}$	. . . . .	.75	. . . . .	.85	
4 x 5	. . . . .	.75	. . . . .	.85	
4 $\frac{1}{4}$ x 6 $\frac{1}{2}$	. . . . .	1.10	. . . . .	1.25	
4 $\frac{3}{4}$ x 6 $\frac{1}{2}$	. . . . .	1.15	. . . . .	1.30	
5 x 7	. . . . .	1.25	. . . . .	1.50	
5 x 8	. . . . .	1.45	. . . . .	1.70	
6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	. . . . .	1.90	. . . . .	2.15	
7 x 11	. . . . .	2.75	. . . . .	3.10	
8 x 10	. . . . .	2.75	. . . . .	3.10	
10 x 12	. . . . .	4.85			
7 x 17	. . . . .	6.50			
11 x 14	. . . . .	7.00			
14 x 17	. . . . .	12.00			
8 x 20	. . . . .	12.65			
16 x 20	. . . . .	23.00			
18 x 22	. . . . .	32.00			
20 x 24	. . . . .	40.00			

## ROYAL LANTERN SLIDE PLATES

Sizes	Price per Doz.		With Backing	
3 $\frac{1}{4}$ x 3 $\frac{1}{4}$	. . . . .	\$ .50	. . . . .	\$ .60
3 $\frac{1}{4}$ x 4	. . . . .	.55	. . . . .	.65

## EASTMAN PORTRAIT FILM

Sizes	Price per Doz.		Sizes	Price per Doz.	
4 $\frac{1}{4}$ x 6 $\frac{1}{2}$	. . . . .	\$ 1.10	8 x 10	. . . . .	\$ 2.75
4 $\frac{3}{4}$ x 6 $\frac{1}{2}$	. . . . .	1.15	10 x 12	. . . . .	4.85
5 x 7	. . . . .	1.25	7 x 17	. . . . .	4.85
5 x 8	. . . . .	1.45	11 x 14	. . . . .	7.00
6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	. . . . .	1.90	8 x 20	. . . . .	7.25
7 x 10	. . . . .	2.40	12 x 20	. . . . .	11.00
7 x 11	. . . . .	2.75			

Canadian Kodak Co., Limited, Toronto, Can.

# EASTMAN

## Professional Booklets

### The Photography of Colored Objects

A book which makes plain the theory of color rendering in monotone and the application of this theory to the practice of photography. With color charts, diagrams and comparative illustrations. *Post paid, 50 cents*

### The Art and Practice of Photographing Paintings

A treatise on the rendering of colors into monochrome with especial reference to Paintings.

*Post paid, 12 cents*

### "Lantern Slides"

#### How to Make and Color Them

A handbook of information concerning the production and coloring of lantern slides with a new method of dye toning by the aid of American made dyes.

*Free on application*

### "Elementary Photographic Chemistry"

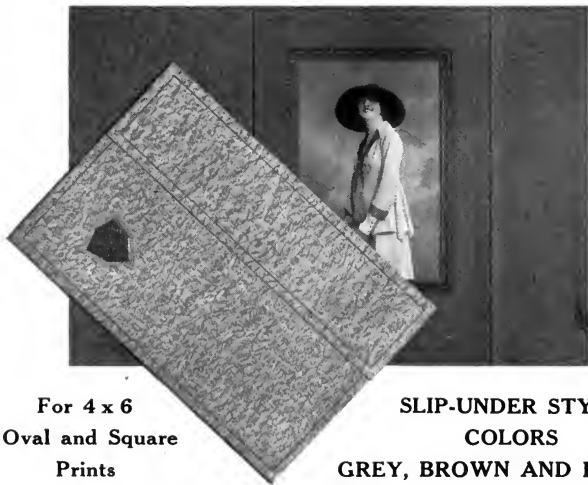
The chemistry of photography with a description of the preparation and properties of the different chemicals used.

*Free on application*

Canadian Kodak Co., Limited,

Toronto, Canada.

# STYLE MAJESTIC



For 4 x 6  
Oval and Square  
Prints

SLIP-UNDER STYLE  
COLORS  
GREY, BROWN AND BUFF

**The Majestic** made of new shades in special enamel stock with a very rich engraved finish. Insert has tinted and embossed bead design with a very attractive shield Crest, brought up in enamel color effect, on upper left hand corner.

This is a very attractive and high class folder to feature for your better class of customers.

**SAMPLE MAILED FREE**

DESIGNED AND MANUFACTURED BY

**Canadian Card Co., Toronto, Canada.**

PHOTOGRAPHIC MOUNTS

MADE IN CANADA



The quality of large prints on

# ARTURA CARBON BLACK

makes the selling easy. Sell one  
with every order.



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Toronto, Canada

*All Dealers'.*



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*By Frank W. Schaldenbrand  
Detroit, Mich.*



# STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 11

DECEMBER 1919

No. 10

## WHY FILM SUCCEEDS

Someone said, "Nothing succeeds like success." It doesn't matter so much who said it. The important thing is that it is a fact.

When Portrait Film was placed on the market a few years ago, we were confident it would succeed. We were not betting on our ability to sell the film idea by advertising and demonstrating. They would help, to be sure, but they could only help.

We were betting on the success film had already made—the biggest success in the history of photography—motion pictures.

It was film success that would sell film.

But just here we might say that this was not a big idea conceived and executed over night. It was twenty years old, and those twenty years represented a great deal of thought and experimental work. Film for professional use was a different thing

than film for motion pictures, though fundamental principles were the same.

When Portrait Film had been perfected, that is, when we had gone as far as we could go and must put it into the hands of photographers to find what faults it might develop, we did so with the idea of correcting such faults before giving it further tests.

But film had succeeded. There were some minor faults to be corrected, but those who had tried it said, "Give us more film, we will have to find more serious faults than we have found before we will give it up."

Once we knew what they were, the little faults were overcome and film was placed in the hands of the dealers. We knew it was a success but we had to convince others. We knew the wonderful results that were being secured on film, but we had to tell and show and prove to others.

Film sales grew from month to month by leaps and bounds.

A good year's business was doubled the next and that year's business the next, until we are reaching the point where such increases can no longer be reasonably expected unless the photographers of the country begin doubling their business as well.

But even this may come about.

In those days when motion pictures were pretty much straight photography, there was the firm belief in many minds that the novelty would wear off. They were only ordinary pictures that had to follow the rules and limitations of photography.

But the motion picture business had grown and a lot of reckless operators who didn't give a rap about the rules and regulations of photographic procedure, had broken into the business. Rank revolutionists to be sure, but they were backed by the producers who wouldn't have hesitated to ask for a "close up" of old Sol himself if they could have used it.

A wonderful change came over the "movies." Wonderful effects were produced, artistic beyond a question, but entirely contrary to the orthodox rules of photography. The novelty wore off but the "movies" were appreciated more than ever for the artistic note that had been introduced. They had gone ordinary photography one better and film quality had enabled them to succeed.

With the introduction of Por-

trait Film, home portraiture, which was struggling with the same problem the motion picture producers had struggled with, received a greater impetus. Portrait Film made its first big success in home portraiture.

There were not many photographers engaged in this work but their numbers grew as the work they produced came to the notice of the profession, and Film sales grew with them. And, finally, Portrait Film broke through the crust of prejudice or doubt and came into the studios of many of our most prominent workers.

The commercial photographer had taken advantage of film quality in the meantime, and had asked for other emulsions. He had found Portrait Film so superior for certain classes of work that he wanted to use film for all his work. And so we gave him Commercial and Commercial Ortho and Process Film.

We have talked a lot about film and many photographers have said this made them film users. We don't take the credit. Our demonstrators have done excellent work and have made many customers for film but they don't take the credit for more than their work. Film quality is the one thing that is responsible for film sales and film quality may be responsible for the doubling of many a photographer's business.

The sales of Eastman Profes-



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*By Frank W. Schaldenbrand  
Detroit, Mich.*



sional Film for October, 1919, were 262% in excess of those for October, 1918, and we thought those 1918 sales would be hard to double. They represented a big war-time portrait business. We have more than trebled them in October, 1919.

*These figures apply to U. S. Similar comparisons are not yet available for Canada.*



## THE EASTMAN PROFESSIONAL SCHOOL

The School has been re-enlisted. It has not been mustered into service as yet but is so soon to be that it is none too soon for those within reach of the first few towns on its route to make their plans to attend.

It has been two years since the war-time conservation of transportation facilities made it advisable to temporarily discontinue the School.

Photography has made great strides in those two years and a greater and more favorable sentiment towards portrait photography has been created. Photographing the individuals that made up our Army and Navy was a big order for the photographers of the country. It made business but it was also responsible for the favorable sentiment we speak of which means continued business.

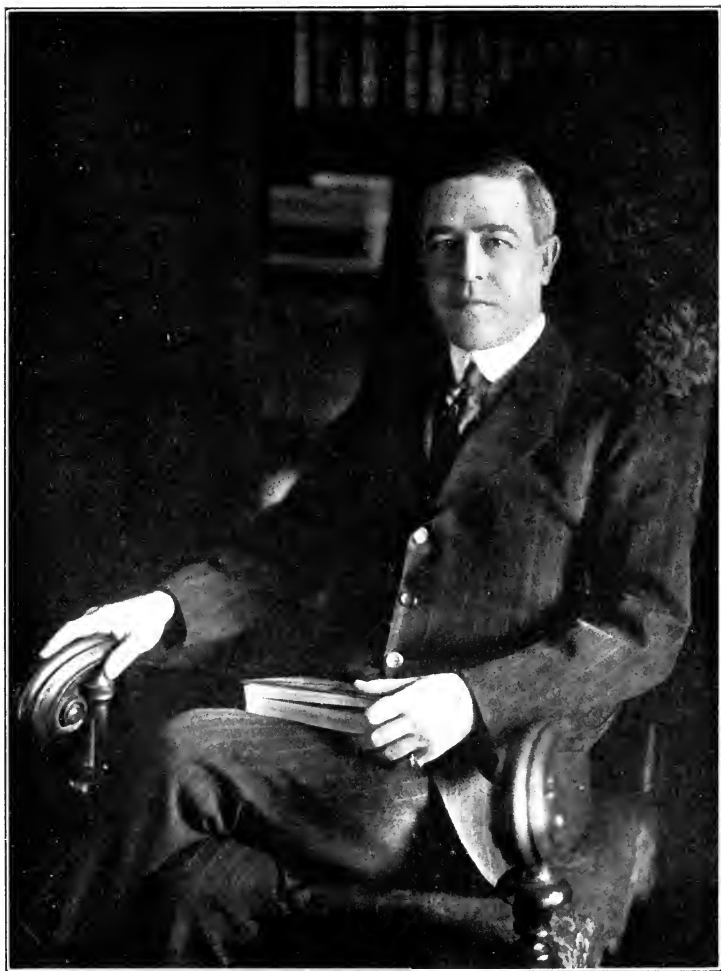
Now is the time to show what

wonderfully good photographs can be made, and to convince the public that every family should have its picture history. Also to exploit photography in the great fields of industry where it is especially useful but where only the surface opportunities have been scratched.

The purpose of the Eastman Professional School is not only to teach methods of making better pictures but methods of getting business and conducting a business profitably, as well. The latter is just as important as the former, and taken together they spell success.

The new School will have, except for its management, an entirely new personnel of instructors who have been chosen, each for his special ability to do some one line of work and do it well. They will have a great many new ideas and the ability to express them clearly to others.

Great advances have been made in portrait photography and new methods of portrait lighting will be one of the School features. The very general use of Portrait Film has enabled photographers to get out of the beaten paths—to produce original but wonderfully natural effects that are startling to those who have known only plate results. It is a relief to break away from the old methods of working and to produce things that are really new. And these School demonstrations of



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lighting and negative making will be stimulating.

Industrial photography is another important branch of present day photography. The term, "Industrial Photography" is a broader one than "Commercial Photography" and is better suited to the work the so-called commercial photographer is called upon to do. A competent instructor is in charge of this work and will offer much information and suggestion and will demonstrate the most approved methods of photographing difficult subjects to the best advantage.

Printing, enlarging, reducing—every step of the various processes of reproduction will also be treated from every angle with the aim of producing the best results by the most simple and efficient methods.

And not least, by any means, will be the attention that will be given to business methods. The best photographer is not always the most successful, but he should be and can be if he masters business or has a business manager.

If we were asked what things were most essential to success in photography, we would place business ability first. Any able business man with a knowledge of salesmanship, advertising and accounting who is also a fair judge of human nature, need not know anything about photography to successfully operate a studio. He can employ those

who are expert in photographic work more easily than the expert photographer can employ a man with business ability.

The photographer must become a business man. He must manage his affairs in a business like way to be financially successful, and the sooner he gives business methods a share of attention equal to that which he gives photography the sooner will he profit. The new School will devote several lectures to business methods, and throughout its entire course the business side of photography will constantly be kept in mind.

There will be a lot of work crowded into a three day session, and to make every point of every lecture perfectly clear the talks and demonstrations will be illustrated.

There will be new features which we cannot mention at this time. We can say that they will be decidedly worth while, however—in fact the entire School will be so new that no one who can spare the time can afford to miss it. The opening School dates are given on page 22.



*Know the quality of Film  
results and you have the secret  
of the success of*

*Eastman Portrait Film*





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# DIFFICULT THINGS TO PHOTOGRAPH PAINTINGS

## PART II

Daylight is best for copying paintings, but if artificial light is used a lamp should be used on each side to give even illumination and these should be so arranged that there are no reflections. Due regard must be given to the color of artificial light when selecting a filter. Artificial lights are generally deficient in blue while the plate or film has an excess of sensitiveness to blue. Naturally then as filters for orthochromatic correction cut out more or less of the excess of blue light the correction need not be so great when an artificial light is used which emits only a fraction of the blue that is present in daylight.

The position of the camera is of great importance. The lens should be exactly in the center of the picture so that a line drawn through its axis would pass through the center of the picture and the center of the plate, otherwise the perspective will be objectionable. The plate must always be parallel with the picture and this without the use of the swing back. A lens must be used that does not distort and the flatter its field the better.

Pictures that contain a complete range of color necessitate

the use of a panchromatic plate. The Wratten Panchromatic is sensitive to all colors. The difference between an orthochromatic and a panchromatic plate is that while the former is fairly correct in its rendering of certain subjects, when used with a suitable screen, it is still much too sensitive to blues and is not at all sensitive to reds.

At first sight there may seem to be no prominent reds or blues in a picture, but they may be there as component parts of the colors you do see. In such a case you may not be able to detect a difference in a panchromatic and an orthochromatic result in the negative, but when prints from the two negatives are placed side by side you see it. There is a softness of gradation in the print from the panchromatic negative and a hardness and brokenness of masses in the print from the orthochromatic negative that makes all the difference between a good and a bad reproduction.

The Wratten K 3 Filter is undoubtedly the most generally useful as it reproduces truthfully in monochrome the relative brightness of the colors photographed. Often a K 2 Filter gives sufficient correction. On the other hand, the deep yellow G is sometimes preferable and in a few cases the red A for reproducing dark old oil paintings which generally contain deep browns and reds in which it is



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Detroit, Mich.*



desirable to show rather more detail than is obvious to the eye at the first glance. It might be added that in using filters cemented in glass it is necessary to focus with the filter in position as it is only when the object is at a great distance that the difference in focus is inappreciable.

There is nothing peculiar in the development of the panchromatic plate. One must remember that the object is to reproduce an effect in black and white that parallels the effect in color and unless this is done, no matter how good the result, it is a failure. As a general rule under-develop rather than over-develop as complete gradation must be secured in the print. Longer or shorter development will decide the contrast, assuming, of course, that the exposure has been correct. Full details of the working of panchromatic plates and the use of filters are given in the booklet, "Color Plates and Filters for Commercial Photography," and developing instructions will be found in each box of plates.

To successfully photograph paintings one must go to some extra trouble at first, but the necessary precautions soon become second nature and satisfactory results are easily secured. It needs but the comparison between an ordinary and a panchromatic plate result to at once appreciate the wonderful advantages of color sensitiveness.

## THE MAN WHO MADE THE PICTURES

When a man has devoted twenty-eight years of his life to photography, has worked hard and made a reputation for himself and his work, we think he is entitled to display a line on his stationery: "Studio sittings by appointment only."

In the case of the particular photographer we have in mind, Mr. Frank W. Schaldenbrand, who is the subject of this sketch, that little line means a lot. To be specific, it means that if there are no appointments booked for Saturday or Wednesday or Monday or any other day that we might choose to outguess the weather man, we can put on our white ducks, run down to the lake and, if there is a favorable wind, step aboard the "Chinook" with "Skipper" Schaldenbrand and forget everything but the wind above and the water beneath.

When a man gets one of these water "bugs," business is likely to interfere with pleasure, but Mr. S. seems to have worked out a system that cuts out the interference. Just here we must let it be understood that by "bug" we mean hobby. The "Chinook" is not a bug but a very nifty little craft that is roomy enough for a few friends and some of the studio help who



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are seldom left out of these sailing parties.

A hobby is a mighty good thing if it is a recreation hobby. A man should never insist that his profession is his hobby. Business is business and recreation must be something that gives a man relief from his business. A hobby then becomes a benefit, for it makes him enjoy his work all the more for the respite it has given him.

Mr. Schaldenbrand began his photographic career with the late James Arthur of Detroit, was in business in Pittsburgh for twelve years and for the last six years has practiced home portraiture in Detroit. Portrait Film, he says, has been the real backbone of his success. Portrait Film and home portraiture, for with Portrait Film he has been able to produce such excellent work in the homes of his patrons that it has required nothing more than the work itself to advertise his business.

His work is made entirely by daylight, which we still believe is the most satisfactory way of producing perfectly natural home portraits. The use of artificial light is often more convenient and much more easily controlled, but while the results are satisfactory it is more readily seen that the effects are not those natural lightings which we find in every home.

Mr. Schaldenbrand has a studio

where sittings are made only by appointment. With his home and studio appointments he is kept as busy as he wishes to be and the business is probably as profitable as if he devoted all of his time to studio work. At any rate the plan suits him, home portraiture suits him and film suits him. And the excellent Artura prints he delivers from his film negatives suit his customers and bring a handsome price.

Our illustrations are examples of the regular run of Mr. Schaldenbrand's home portrait work. It is not spectacular and it is by no means commonplace. The lightings are perfectly natural and the prints reproduce the excellent negative quality. It is the kind of work that pleases and brings more business to the man who makes it.



*What photographers say of Portrait Film applies equally well to Commercial Ortho Film, to Commercial Film and to Process Film. Film results are different because they are better, and they are best when the subjects are most difficult.*



## PRICE CO-OPERATION

*By Edgar M. Atkins*

Mr. Atkins is of the opinion that a part, at least, of the portrait-making profession needs a jolt on a subject that affects its pocketbook. What he has to say does not concern the man who pays himself a salary and has a reasonable profit when his books are closed at the end of the year, but it may be of help to the man who works hard, who thinks he is making a profit, who finds he isn't but who doesn't know how to go about it to correct the error,

Mr. Atkins does not suggest the fixing of selling prices. He has employed a cost system in his business and has found the point below which his photographs cannot be sold at a profit. He contends that the lack of cost systems not only works a hardship on the photographer without them but on the competitor who knows his costs. He believes in healthy competition but suggests co-operation in determining minimum prices below which photographs cannot be sold at a profit.

—Editor's Note.

Now that all business is contending with actively changing conditions and the adjustments incident thereto, it is a most fitting time for the portrait-making photographic profession to arouse itself to the urgent need of better business co-operation.

While we have our national and amalgamated associations, the benefits derived from them are largely educational. We need also organizations the purpose of which should be to further the interests of the profession in a business way. Everywhere there are manufacturers' associations, business men's associations, employers' associations, for this purpose; and employees of nearly every industry are organized for the purpose of improving their working conditions and for secur-

ing a minimum pay for their work. For the same reasons, professional men, owners and managers of photographic businesses should have their local associations. The need of business co-operation is self-evident.

I shall make no attempt to enumerate the many benefits to be derived from local associations, but in every community where they do not exist, they should be immediately formed, and the moving spirit should be one of good fellowship, co-operation and mutual help. The question of a minimum price, based on costs, at which portrait photographs should be sold would be a subject which could properly be brought before such organizations.

I do not believe in hampering healthy business competition, but I do believe (and I think the profession will agree with me) that there should be a minimum price, based on costs, at which portrait photographs should be sold.

To charge a certain price (based on costs) per square inch per dozen prints, would be a business-like way of solving this question. If for individual pictures a minimum price were charged of 25c per square inch per dozen prints for 4x6's and larger sizes, then the minimum price per dozen for 4x6's would be exactly \$6.00, for 5x8's \$10.00, for 6x8's \$12.00, for 6x10's \$15.00, for 8x10's \$20.00, for 10x14's \$35.00, etc.



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*By Frank W. Schaldenbrand  
Detroit, Mich.*







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The charge for prints smaller than 4x6's should increase somewhat as the size decreases. For instance, as a 3 x 4 print is one-half the size of a 4 x 6, the price per square inch should increase one-half of 25c or to 37 ½c, making the minimum price per dozen \$4.50. If so small a size as 2x3 is made, the price should increase over the 3x4 rate to not less than \$3.25 per dozen. A liberal discount—say 50%—should be allowed on pass-port prints, post-cards, and similar work on which no proof is shown. Minimum prices once determined, a rate card could be compiled and supplied which would obviate any possible confusion.

The charge for making group pictures should increase over the price for individual pictures for 4x6's say, 25c per print for each additional person more than one, for 12 or more pictures, with an increased charge per person for larger sizes and a decreased charge for smaller sizes.

The price for less than dozen lots should be, for one picture one-third of the dozen price, with one-twelfth of the dozen price added for each additional print wanted up to one-half dozen, and with one twenty-fourth of the dozen price added for each print over six up to twelve, with the result that the price for three pictures would be one-half the dozen price, and for six pictures three-fourths of the

dozen price, and with the final result that twelve pictures on this basis would amount to exactly the dozen price.

Duplicates: If you have made so good a picture that duplicates are wanted, they should be charged for in dozen lots at the regular dozen price then prevailing. If only a part of a dozen is wanted, the first print should be charged for at one-sixth of the dozen price with one-twelfth of the dozen price added for each additional print wanted up to eight, and one-sixteenth of the dozen price added for the balance up to twelve, with the result that a full dozen figured on this basis would amount to exactly the dozen price.

This whole plan of charging should be for unmounted prints. At the time of delivery, an effort should be made to sell as many suitable frames for them as possible, and for the balance of the order, the most suitable folders for those particular prints should be sold at cost plus overhead. For if the customer is given to understand that only a small charge will be made for folders, the chances are improved for selling higher priced pictures.

The charge for retouching extra negatives could also be figured on the square-inch basis, depending on the size of the print or negative, with an extra charge per person for group pictures. At 5c per square inch for re-



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touching extra negatives, the charge for single heads for 4x6's would be, practically, \$1.25.

I do not maintain that the figures I have used to illustrate with should be necessarily adhered to; but I have proposed herein an easily understood and workable plan. It is a business-like and scientific method of arriving at prices.

The successful application of this plan of necessity requires genuine co-operation through local associations, where there would be an interchange of ideas and the benefits of just criticism obtained.

[Copyright, 1919, by Edgar Mason Atkins.]



## REDUCE OVERHEAD

When the photographs you make are sold at a fairly estimated profit, the only way you can reduce the overhead is to increase the number of your orders or to increase the size of them, in either case reducing the percentage of the estimated overhead cost.

Forgetting for a moment the various ways that may be devised to increase the number of customers, we would suggest that there is a very good way of increasing the orders of the customers you now have.

When you have made several excellent portraits of a person, choose the one that has pleased

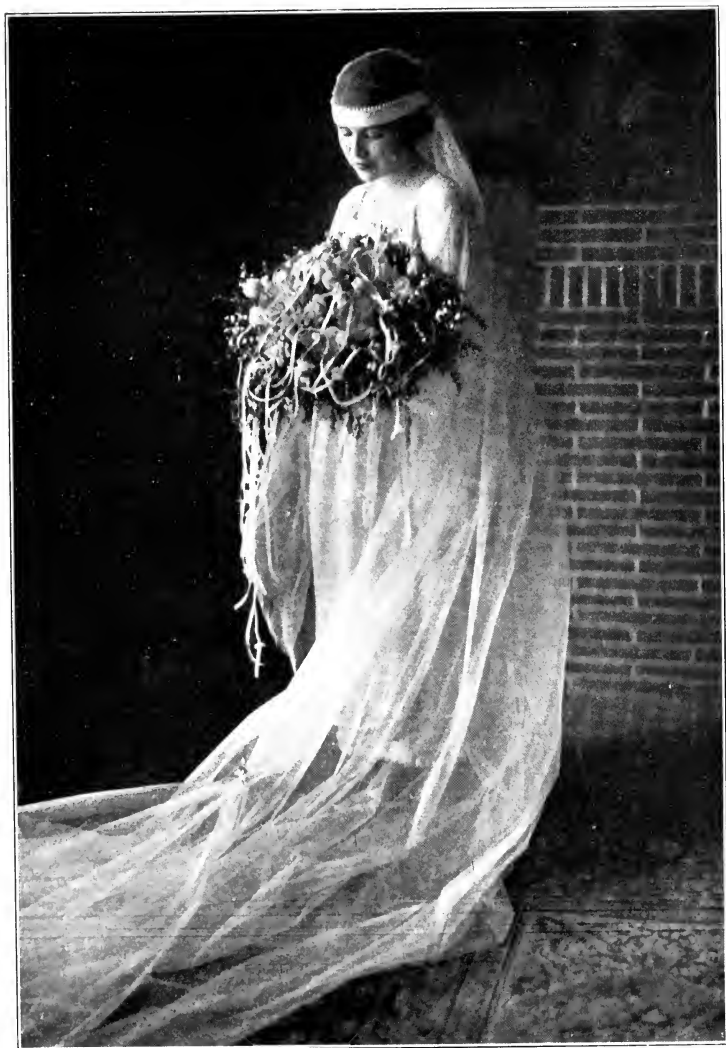
your patron particularly well and make an enlargement of fair size. At the time you deliver the order of small prints, show the larger print which you have embossed and slipped into a folder.

"No, the large print was not ordered, but we were making several large prints and as you liked this portrait and we think it is an excellent example of our work, we made the large print. If you do not care for it we would like permission to use it in our display."

If your judgment is good, however, you will make enough extra sales to materially lower your overhead. We have heard of photographers who did enough extra business in enlargements to pay the entire overhead expense of the studio. When this can be done the regular profits are materially increased, as costs are then reduced to actual labor and materials.

It is a simple matter to make enlargements and finish them the same as contact prints. If you do not have an enlarging outfit you may have practically all that is necessary to make one. We have a new edition of our booklet, "Enlarging for the Professional Photographer," and will be glad to send you a copy on request and to supply any further information that may be desired.

Put in an enlarging plant and make the sale of large prints cut down your "overhead."



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Detroit, Mich.*



## NEWS OF THE NATIONAL ASSOCIATION

A number of the New England photographers suggested the competitive exhibition of photographs to be held at the next Convention of the P. A. of A., Chartered Association against Chartered Association, entries to be made as representing Associations and not individuals. Such a contest should draw some good exhibits.

The Trophy, valued at \$250, when won twice by any one Association, to become its permanent property.

### SUGGESTED RULES FOR GOVERNING THE COMPETITION

1. Not less than forty photographs—framed or unframed—selected from the work of twelve or more members of each competing Amalgamated (or Chartered) Asso-

ciation shall comprise the official entry of such Association.

2. Photographers whose work is chosen, must be active members of their Association, in good standing, and also active members of the P. A. of A.

3. Each photographer whose work is chosen to represent his association shall not have more than six nor less than two prints in his Association exhibit-group, and such prints must be wholly the product of the individual studio exhibiting.

4. The National Association shall assist the exhibitors in every way possible and shall guarantee impartial distribution of light and space for the exhibit-groups.

5. A Certificate of Award shall be given by the P. A. of A. to each contributor in the exhibit-group winning the Trophy.

6. The Executive Board of the P. A. of A. shall formulate such method of procedure of judging the exhibit-groups as to ensure an impartial and equitable awarding of the Trophy.

## BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1920

Albany, N. Y. . . . .	January 21, 22, 23
Syracuse, N. Y. . . . .	January 27, 28, 29
Buffalo, N. Y. . . . .	February 3, 4, 5
Cincinnati, O. . . . .	February 11, 12, 13
Cleveland, O. . . . .	February 17, 18, 19
Detroit, Mich. . . . .	February 24, 25, 26
Toronto, Ont. . . . .	March 2, 3, 4
Montreal, Quebec . . . . .	March 9, 10, 11



Photographs of  
the children  
never grow up.

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*Make the appointment  
to-day.*

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The  
Smith Studio

Line cut No. 270. Price, 50 cents.

## THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

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## *System for the Studio*

System of itself doesn't increase your profits, but it does point out your losses.

A special system of bookkeeping has been devised for handling all the accounts of a studio in such a simple manner that it may be applied to a studio business of any size. It permits one to keep an accurate record of all expenses and to contrast it with volume of business and profits, making it possible to determine accurately the condition of your business at any time.

The booklet, "System for the Photographic Studio," explaining the method and giving examples of its working will be mailed on request.

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Eastman Studio Cash Book, with instructions .	\$5.00
Eastman Studio Shop Tickets, per 100 . . .	.50
Eastman Studio Follow-Up Cards, per 100 . .	.75
Eastman Studio Register System, complete with oak desk case, transfer case and cards . .	6.00

*Prices f. o. b. Rochester, N. Y.*

**Canadian Kodak Co., Limited,**

*All Dealers'.*

**Toronto, Canada**





*For tank development of film or plates*

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A strong, durable and convenient box for tank development. Accommodates Portrait Film in Film Developer Hangers or Plates in Core Plate Racks.

Covers to keep out the light, and floating lids to prevent oxidation of the developer, are made of steel, coated with the same heavy acid-resisting enamel as the boxes.

A projecting rim and collar permits of the box being covered when filled with Film Hangers or Plate Racks. The boxes are light, strong and easy to handle.

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	Box	Cover	Floating Lid
No. 2 —Capacity, 8, 5 x 7 films or plates . . . .	\$6.25	\$1.70	\$1.10
No. 2 A—Capacity, 20, 5 x 7 films or plates . . . .	7.25	2.15	1.10
No. 3 —Capacity, 20, 5 x 7 or 12 8 x 10 films or plates . . . .	8.00	2.15	1.10
No. 3 A—Capacity, 6, 8 x 10 films or plates . . . .	6.75	1.70	1.10
No. 4 —Capacity, 20, 5 x 7 or 12 7 x 11 films or plates . . . .	8.50	2.15	1.10

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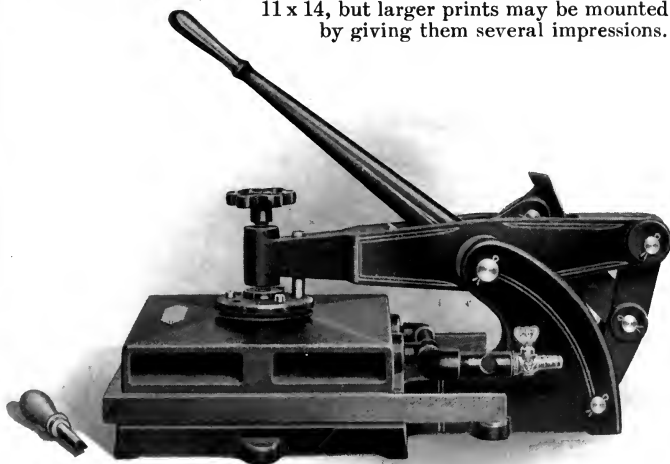
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Puts the practical finishing touch to a good piece of work. Dry-mounted prints retain their good appearance. You can deliver them with confidence, knowing that they will continue to look well—to stand up and advertise the thoroughness of your workmanship.

Prints may be dry-mounted to the thinnest of cards or folders without cockling. The dry-mounting tissue also protects the back of the print from moisture. Dry-mounted prints lie perfectly flat and are ready for delivery as soon as mounted.

The Kodak Dry Mounting Press is made in two sizes, 5 x 7 and 11 x 14, but larger prints may be mounted by giving them several impressions.



Kodak Dry Mounting Press,  
11 x 14

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TORONTO, CANADA

Built for service



## EASTMAN METAL TRIMMERS

Are strong, accurate and convenient. They are positive in their cutting action—they stand up and give service. Made of metal, they can't warp—they always cut true.

Eastman Metal Trimmers are furnished in three sizes, with solid metal beds, ruled with white lines in one-half inch squares.

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No. 10—10-inch blade and rule . .	\$15.00
No. 15—15-inch blade and rule . .	20.00
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THE OLD RELIABLE

You can't buy a better developer or a more economical developer at any price. We recommend it for the richness and brilliancy—the real quality of the prints it produces.

*We test it—we know it's right.*

THE (Reduced) PRICE

1 oz. bottle . . . . .	\$ 1.45
$\frac{1}{4}$ lb. bottle . . . . .	5.45
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1 lb. bottle . . . . .	21.00

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*We Buy Old Negatives—  
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We purchase lots of 100 pounds or more of Portrait or Commercial Film negatives, if in good condition and shipped in accordance with instructions. Before making any shipments, however, please secure packing instructions, prices and further particulars.

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in a variety of brands that will  
make success practical and sure for

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FOR 3 x 4 AND 3¼ x 5½ PRINTS.  
COLORS—GREY AND BROWN.



The Stand-ard, a folder that has made a *hit*. The cover can be turned over and made into an attractive easel mounter as shown in illustration by slipping back strip through slit in cover. It is a very attractive style and will bring in extra business from the young folks.

SAMPLE MAILED FREE

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